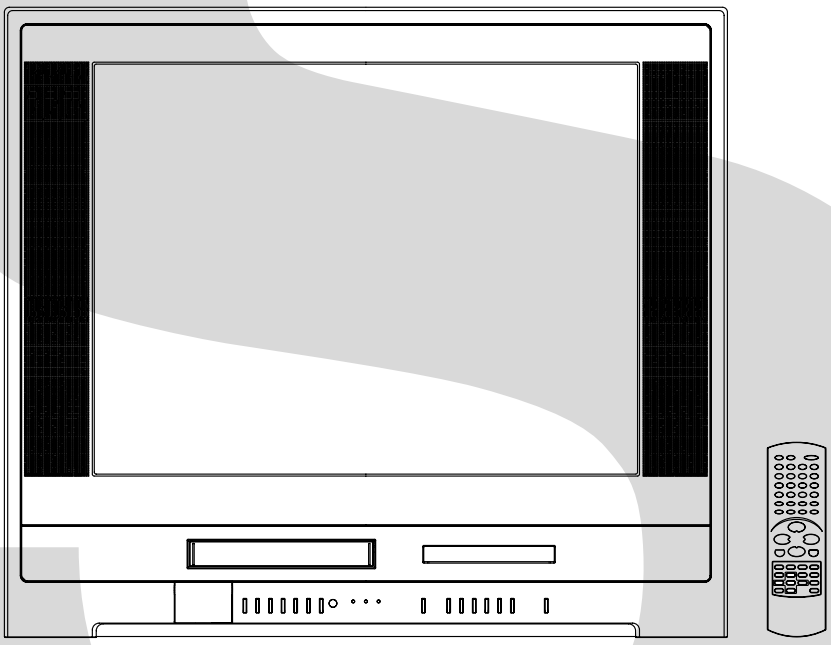
TOSHIBA

FILE NO. 140-200413

# SERVICE MANUAL

# COLOR TELEVISION/ VIDEO CASSETTE RECORDER/ DVD VIDEO PLAYER

# MW27FP1



DOCUMENT CREATED IN JAPAN, Mar., 2004

# CAUTION

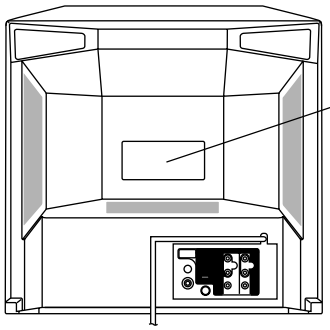
THIS DIGITAL VIDEO PLAYER EMPLOYS A LASER SYSTEM.

TO ENSURE PROPER USE OF THIS PRODUCT, PLEASE READ THIS SERVICE MANUAL CAREFULLY AND RETAIN FOR FUTURE REFERENCE. SHOULD THE UNIT REQUIRE MAINTENANCE, CONTACT AN AUTHORIZED SERVICE LOCATION-SEE SERVICE PROCEDURE.

USE OF CONTROLS, ADJUSTMENTS OR THE PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

TO PREVENT DIRECT EXPOSURE TO LASER BEAM, DO NOT TRY TO OPEN THE ENCLOSURE. VISIBLE LASER RADIATION MAY BE PRESENT WHEN THE ENCLOSURE IS OPENED. DO NOT STARE INTO BEAM.

**Location of the required Marking**
The rating sheet and the safety caution are on the rear of the unit.



CERTIFICATION: COMPLIES WITH FDA RADIATION PERFORMANCE STANDARDS, 21 CFR SUBCHAPTER J.

PREPARATION OF SERVICING

The laser diode used for a pickup head may be destroyed with external static electricity.
Moreover, even if it is operating normally after repair, when static electricity discharge is received at the time of repair, a life of product may become short.
Please perform the following measure against static electricity, be careful of destruction of a laser diode enough at the time of repair, and work.

- It works on the desk which performed measures against static electricity, such as conductive mat.
- Soldering iron with ground wire or ceramic type is used.
- A worker needs to use a ground conductive wrist strap for body.

# SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES

As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.
Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a ⚠ mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.
Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.
Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

**(INSULATION CHECK PROCEDURE)**

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the eternal exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

**[Note 1]**

If you have not the 500V insulation resistance meter, use a Tester.

**[Note 2]**

External exposure metal: Antenna terminal

# HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

1. MODEL NUMBER and VERSION LETTER
   The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.
2. PART NO. and DESCRIPTION
   You can find it in your SERVICE MANUAL.

# IMPORTANT SAFEGUARDS

1. **READ INSTRUCTIONS**
   All the safety and operating instructions should be read before the unit is operated.
2. **RETAIN INSTRUCTIONS**
   The safety and operating instructions should be retained for future reference.
3. **HEED WARNINGS**
   All warnings on the unit and in the operating instructions should be adhered to.
4. **FOLLOW INSTRUCTIONS**
   All operating and use instructions should be followed.
5. **CLEANING**
   Unplug this unit from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **ATTACHMENTS**
   Do not use attachments not recommended by the unit's manufacturer as they may cause hazards.
7. **WATER AND MOISTURE**
   Do not use this unit near water. For example, near a bathtub, washbowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **ACCESSORIES**
   Do not place this unit on an unstable cart, stand, tripod, bracket, or table. The unit may fall, causing serious injury, and serious damage to the unit. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer.

PORTABLE CART WARNING
(symbol provided by RETAC)

S3126A

**8A.** An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.

9. **VENTILATION**
   Slots and openings in the cabinet and in the back or bottom are provided for ventilation, to ensure reliable operation of the unit, and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the unit on a bed, sofa, rug, or other similar surface. This unit should never be placed near or over a radiator or heat source. This unit should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **POWER SOURCES**
    This unit should be operated only from the type of power source indicated on the rating plate. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For units intended to operate from battery power, or other sources, refer to the operating instructions.
11. **GROUNDING OR POLARIZATION**
    This unit is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug. If your unit is equipped with a 3-wire grounding-type plug, a plug having a third (grounding) pin, this plug will only fit into a grounding-type power outlet. This too, is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the grounding-type plug.
12. **POWER-CORD PROTECTION**
    Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **LIGHTNING**
    To protect your unit from a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the unit due to lightning and power line surges.
14. **POWER LINES**
    An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.
15. **OVERLOADING**
    Do not overload wall outlets and extension cords, as this can result in a risk of fire or electric shock.
16. **OBJECT AND LIQUID ENTRY**
    Do not push objects through any openings in this unit, as they may touch dangerous voltage points or short out parts that could result in fire or electric shock. Never spill or spray any type of liquid into the unit.

# IMPORTANT SAFEGUARDS (CONTINUED)

**17. OUTDOOR ANTENNA GROUNDING**

If an outside antenna or cable system is connected to the unit, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code, ANSI/NFPA 70, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

**18. SERVICING**

Do not attempt to service this unit yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

**19. DAMAGE REQUIRING SERVICE**

Unplug this unit from the wall outlet and refer servicing to qualified service personnel under the following conditions:

a. When the power-supply cord or plug is damaged.
b. If liquid has been spilled, or objects have fallen into the unit.
c. If the unit has been exposed to rain or water.
d. If the unit does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the unit to its normal operation.
e. If the unit has been dropped or the cabinet has been damaged.
f. When the unit exhibits a distinct change in performance, this indicates a need for service.

**20. REPLACEMENT PARTS**

When replacement parts are required, be sure the service technician uses replacement parts specified by the manufacturer or those that have the same characteristics as the original parts.
Unauthorized substitutions may result in fire, electric shock or other hazards.

**21. SAFETY CHECK**

Upon completion of any service or repairs to this unit, ask the service technician to perform safety checks to determine that the unit is in proper operating condition.

**22. WALL OR CEILING MOUNTING**

The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

**23. HEAT**

The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

**24. DISC TRAY**

Keep your fingers well clear of the disc tray as it is closing. It may cause serious personal injury.

**25. CONNECTING**

When you connect the product to other equipment, turn off the power and unplug all of the equipment from the wall outlet. Failure to do so may cause an electric shock and serious personal injury. Read the owner's manual of the other equipment carefully and follow the instructions when making any connections.

**26. SOUND VOLUME**

Reduce the volume to the minimum level before you turn on the product. Otherwise, sudden high volume sound may cause hearing or speaker damage.

**27. SOUND DISTORTION**

Do not allow the product output distorted sound for a longtime. It may cause speaker overheating and fire.

**28. HEADPHONES**

When you use the headphones, keep the volume at a moderate level. If you use the headphones continuously with high volume sound, it may cause hearing damage.

**29. LASER BEAM**

Do not look into the opening of the disc tray or ventilation opening of the product to see the source of the laser beam. It may cause sight damage.

**30. DISC**

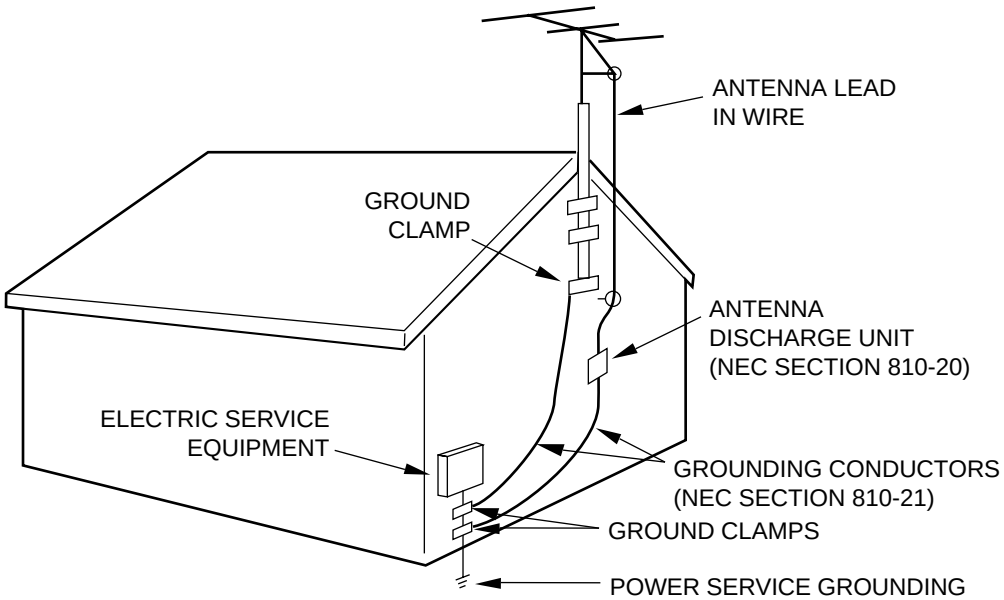
Do not use a cracked, deformed, or repaired disc. These discs are easily broken and may cause serious personal injury and product malfunction.

**31. NOTE TO CATV SYSTEM INSTALLER**

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

# IMPORTANT SAFEGUARDS (CONTINUED)

EXAMPLE OF ANTENNA GROUNDING AS PER THE NATIONAL ELECTRICAL CODE



## TAPE REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the TV/DVD/VCR block from the main unit and the **Fig. 1** below can be seen. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Remove the screw 1 of the Deck Chassis and remove the Loading Motor.
3. Rotate the Pinch Roller Cam in the direction of the arrow by hand to slacken the Video Tape. **(Refer to Fig. 2)**
4. Rotate the Clutch Ass'y either of the directions to wind the Video Tape in the Cassette Case.
5. Repeat the above step 3~4. Then take out the Video Cassette from the Deck Chassis. Be careful not to scratch on the tape.

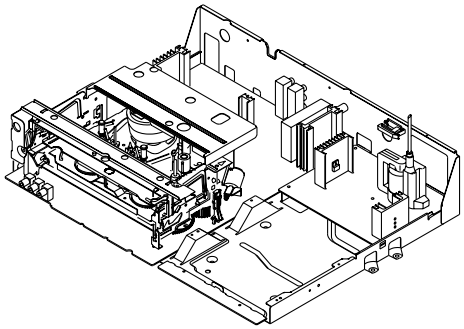


**Fig. 1**

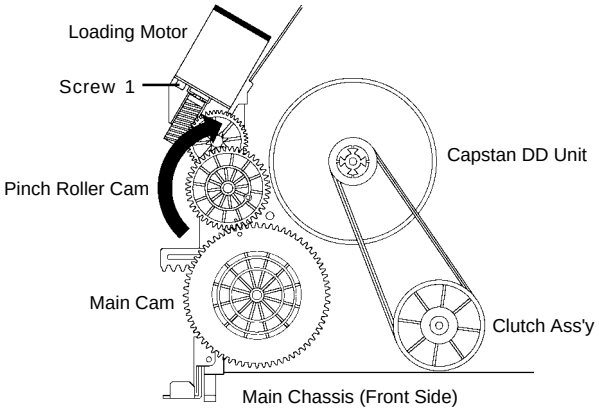



**Fig. 2**

## DISC REMOVAL METHOD AT NO POWER SUPPLY

1. Remove the Back Cabinet, TV//DVD/VCR Block and DVD TOP. **(Refer to item 1 of the DISASSEMBLY INSTRUCTIONS.)**
2. Slide the Rack Loading (White) toward the arrow direction by using a minus driver to release the lock. **(Refer to Fig. 1)**
3. Draw the Tray.

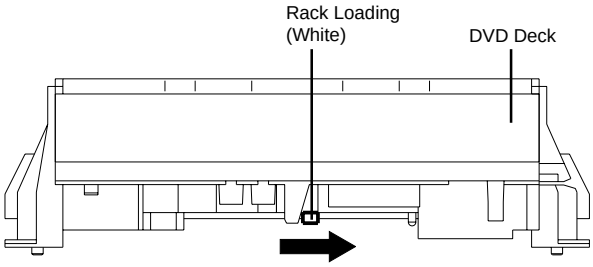



**Fig. 1**

# PARENTAL CONTROL - RATING LEVEL

## 4 DIGIT PASSWORD CANCELLATION

If the stored 4 digit password in the Rating Level menu needs to be cancelled, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Check that the 'No disk' is displayed on the screen.
4. Press and hold the 'STOP(DVD)' button on the front panel.
5. Simultaneously press and hold the '2' key on the remote control unit.
6. Hold both keys for more than 2 second.
7. The On Screen Display message 'PASSWORD CLEAR' will appear.
8. The 4 digit password has now been cleared.

# TRAY LOCK

Tray cannot be opened by setting the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Press and hold the 'STOP(DVD)' key on the front panel.
4. Simultaneously press and hold the '9' key on the remote control unit.
5. Hold both keys for more than 3 seconds.
6. Press the OPEN/CLOSE key on the front panel to check the Tray Lock setting.

**NB:** No indications on the screen when the Tray Lock is setting.

To unlock the Tray Lock, please follow the steps below.

1. Turn Unit ON.
2. Set the DVD to the Stop Mode.
3. Set the VOLUME to minimum.
4. Press and hold the 'REC/OTR' button on the front panel.
5. Simultaneously press and hold the '4' key on the remote control unit.
6. Hold both keys for more than 2 second.
7. The On Screen Display message 'INITIALIZE5 COMPLETE' will appear.
8. The Tray Lock has now been cleared.

**NB:** The above procedure will reset ALL of the player's settings to the default factory state.

# TABLE OF CONTENTS


**CAUTION** ..... A1-1
**SERVICING NOTICES ON CHECKING** ..... A1-2
**HOW TO ORDER PARTS** ..... A1-2
**IMPORTANT WARNING** ..... A1-3~A1-5
**TAPE REMOVAL METHOD AT NO POWER SUPPLY** ..... A1-6
**DISC REMOVAL METHOD AT NO POWER SUPPLY** ..... A1-6
**PARENTAL CONTROL RATING LEVEL** ..... A1-7
**TRAY LOCK** ..... A1-7
**TABLE OF CONTENTS** ..... A2-1
**GENERAL SPECIFICATIONS** ..... A3-1~A3-8
**DISASSEMBLY INSTRUCTIONS**
1. REMOVAL OF MECHANICAL PARTS AND P. C. BOARDS ..... B1-1, B1-2
2. REMOVAL OF VCR DECK PARTS ..... B2-1~B2-6
3. REMOVAL OF DVD DECK PARTS ..... B3-1~B3-4
4. REMOVAL OF ANODE CAP ..... B4-1
5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC ..... B5-1, B5-2

**KEY TO ABBREVIATIONS** ..... C1-1, C1-2
**SERVICE MODE LIST** ..... C2-1
**PREVENTIVE CHECKS AND SERVICE INTERVALS** ..... C3-1, C3-2
**WHEN REPLACING EEPROM (MEMORY) IC** ..... C4-1
**SERVICING FIXTURES AND TOOLS** ..... D1-1
**PREPARATION FOR SERVICING** ..... D1-1
**MECHANICAL ADJUSTMENTS** ..... D2-1~D2-4
**ELECTRICAL ADJUSTMENTS** ..... D3-1~D3-6
**BLOCK DIAGRAMS**
DVD ..... E-1, E-2
Y/C/AUDIO/HEAD AMP ..... E-3, E-4
MICON ..... E-5, E-6
IN/OUT ..... E-7, E-8
CHROMA/IF ..... E-9, E-10
SOUND AMP/SURROUND ..... E-11, E-12
Hi-Fi/DEMODULATOR ..... E-13, E-14
DIGITAL COMB FILTER ..... E-15, E-16
DVD IN/OUT ..... E-17, E-18
REGULATOR ..... E-19, E-20
TV ..... E-21, E-22

**PRINTED CIRCUIT BOARDS**
DVD ..... F-1, F-2
VCR ..... F-3~F-6
CRT/VM COIL/RELAY/SW ..... F-7, F-8
DEFLECTION/OPERATION ..... F-9, F-10

**SCHEMATIC DIAGRAMS**
MPEG/MICON ..... G-1, G-2
MEMORY ..... G-3, G-4
RF AMP/DSP ..... G-5, G-6
AUDIO/VIDEO ..... G-7, G-8
Y/C/AUDIO/HEAD AMP ..... G-9, G-10
MICON ..... G-11, G-12
IN/OUT ..... G-13, G-14
CHROMA/IF ..... G-15, G-16
SOUND AMP/SURROUND ..... G-17, G-18
Hi-Fi/DEMODULATOR ..... G-19, G-20
DIGITAL COMB FILTER ..... G-21, G-22
DVD IN/OUT ..... G-23, G-24
REGULATOR1 ..... G-25, G-26
TV POWER ..... G-27, G-28
DEFLECTION ..... G-29, G-30
OPERATION ..... G-31, G-32
CRT/SVM ..... G-33, G-34
RELAY/SW/FG ..... G-35, G-36

**INTERCONNECTION DIAGRAM** ..... G-37, G-38
**WAVEFORMS** ..... H-1~H-3
**MECHANICAL EXPLODED VIEWS** ..... I1-1~I1-3
**CHASSIS EXPLODED VIEWS** ..... I2-1, I2-2
**DVD DECK EXPLODED VIEWS** ..... I3-1
**MECHANICAL REPLACEMENT PARTS LIST** ..... J1-1, J1-2
**CHASSIS REPLACEMENT PARTS LIST** ..... J2-1
**DVD DECK REPLACEMENT PARTS LIST** ..... J3-1
**ELECTRICAL REPLACEMENT PARTS LIST** ..... J4-1~J4-7

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-1** | **TV System** | CRT | | CRT Size / Visual Size | 27 inch / 676.6mmV |
| | | | | CRT Type | Flat |
| | | | | Deflection | 104 degree |
| | | | | Magnetic Field BV/BH | + 0.45 G / 0.18 G |
| | | Color System | | | NTSC |
| | | Speaker | | | 2 Speaker |
| | | | | Position | Front |
| | | | | Size | 1.8 x 3.9 Inch |
| | | | | Impedance | 8 ohm |
| | | Sound Output | | MAX | 2.5W + 2.5W |
| | | | | 10%(Typical) | 2.5W + 2.5W |
| **G-2** | **VCR System** | System | | | VHS Player / Recorder |
| | | Video System | | | NTSC |
| | | Hi-Fi STEREO | | | Yes |
| | | NTSC PB | | | - |
| | | Deck | | DECK | OVD-7 |
| | | | | Loading System | Front |
| | | | | Motor | 3 |
| | | Heads | Video Head | | 4 Heads |
| | | | FM Audio Head | | 2 Heads |
| | | | Audio /Control | | Mono /Yes |
| | | | Erase(Full Track Erase) | | Yes |
| | | Tape Speed | Rec | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | | Play | PAL | - |
| | | | | NTSC | SP/SLP(EP) |
| | | Fast Forward / Rewind Time (Approx.) at 25oC | | | FF:1'48"/REW:1'48" |
| | | | | with Cassette | T-120 |
| | | Forward/Reverse Picture Search | | NTSC or PAL-M | SP/SLP(EP)=3x,5x / 9x,15x |
| | | Frame Advance | | | Yes |
| | | Slow Speed | | | 1/10 |
| **G-3** | **DVD System** | Color System | | | NTSC |
| | | Disc | | | DVD, CD-DA, CD-R/RW, Video CD |
| | | Disc Diameter | | | 120 mm , 80 mm |
| | | Deck | | Disc Loading System | Front Loading |
| | | | | Motor | 2 Motors |
| | | Pick up | | | 1-Lens 2-Beams System |
| | | Playback time(Max) | | DVD 1-Layer | 135min (4.7GB) |
| | | | | DVD 2-Layer | 245min (8.5GB) |
| | | | | CD | 74min |
| | | | | Video CD | 74min |
| | | Search speed | | Fwd | 2-20 times / 4 step |
| | | | | Actual | 2-45 times (DVD, VIDEO CD) |
| | | | | | 4-40 times (CD) |
| | | | | Rev | 2-20 times / 4 step |
| | | | | Actual | 2-45 times (DVD, VIDEO CD) |
| | | | | | 4-40 times (CD) |
| | | Slow speed | | | Fwd 1/7 - 1/2 times |
| | | | | Actual | -- |
| | | | | | Rev -- |
| | | | | Actual | -- |
| **G-4** | **Tuning System** | Broadcasting System | | | US System M |
| | | Tuner and Receive CH | | System | 1 Tuner |
| | | | | Destination | US(w/CATV) |
| | | | | Tuning System | F-Synth |
| | | | | Input Impedance | VHF/UHF 75 ohm |
| | | | | CH Coverage | 2~69, 4A,A-5~A-1, A~I, J~W,W+1~W+84 |
| | | Intermediate Frequency | | Picture(FP) | 45.75MHz |
| | | | | Sound(FS) | 41.25MHz |
| | | | | FP-FS | 4.5MHz |
| | | Preset CH | | | No |
| | | Stereo/Dual TV Sound | | | US-Stereo |
| | | Tuner Sound Muting | | | Yes |

# GENERAL SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **G-5** | **Signal** | Video Signal | Input Level | 1 V p-p/75 ohm |
| | | | Output Level | 1 V p-p/75 ohm |
| | | | S/N Ratio (Weighted) at DVD Mode | 65dB |
| | | | S/N Ratio (Weighted) at VCR Mode | 50dB |
| | | | Horizontal Resolution at DVD Mode | 400 Lines |
| | | | Horizontal Resolution at VCR(SP)Mode | 220 Lines |
| | | RGB Signal | Output Level | - |
| | | Audio Signal | Input Level | -8.0dBm/50k ohm |
| | | VCR | Output Level(0dB=0.775Vrms) | -8.0dBm/1k ohm |
| | | DVD | Output Level(-20dBFs 0dBFs=2.0Vrms) | -12.0dBm/1k ohm |
| | | | Digital Output Level | 0.5 V p-p/75 ohm(DVD) |
| | | | S/N Ratio at DVD (Weighted) | 90 dB |
| | | | S/N Ratio at VCR (SP)(CCIR Filter:ON) | 38 dB |
| | | | Harmonic Distortion at DVD Mode | 0.06% (1kHz) |
| | | | Harmonic Distortion at VCR(SP) Mode | 1.5% (1kHz) Typical |
| | | | Frequency Response : | |
| | | | DVD Mode at DVD | 4Hz - 22kHz |
| | | | at Video CD | 4Hz - 20kHz |
| | | | at SVCD | - |
| | | | at CD | 4Hz - 20kHz |
| | | | VCR Mode at SP | 100Hz - 10kHz |
| | | | at LP | - |
| | | | at SLP | 100Hz - 4kHz |
| | | Hi-Fi Audio Signal | Dynamic Range : More than | 90 dB |
| | | | Frequency Response : | 20Hz - 20kHz |
| | | | Wow And Flutter : Less than | 0.01 %Wrms |
| | | | Channel Separation : More than | 60 dB |
| | | | Harmonic Distortion : Less than | 1.0 % |
| **G-6** | **Power** | Power Source | AC | 120V,60Hz |
| | | | DC | - |
| | | Power Consumption | at AC | 145 W at 120 V 60 Hz |
| | | | at DC | - |
| | | | Stand by (at AC) | 4 W at 120 V 60 Hz |
| | | | Per Year | - |
| | | Protector | Power Fuse | Yes |
| | | | Safety Circuit | Yes |
| | | | IC Protector(Micro Fuse) | No |
| | | | Dew Sensor | No |
| **G-7** | **Regulation** | | Safety | UL |
| | | | Radiation | FCC |
| | | | X-Radiation | DHHS |
| | | | Laser | DHHS |
| **G-8** | **Temperature** | | Operation | +5oC ~ +40oC |
| | | | Storage | -20oC ~ +60oC |
| **G-9** | **Operating Humidity** | | | Less than 80% RH |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-10 | On Screen Display (TV/VCR) | Menu | | Yes | |
| | | Menu | Type | Icon | |
| | | System Setup | | Yes | |
| | | | Clock Set | Yes | |
| | | | On/Off Timer Set | Yes | |
| | | | Auto Clock On/Off | Yes | |
| | | | Standard Time | Yes | |
| | | | Daylight Saving Time | Yes | |
| | | TV Setup | | Yes | |
| | | | Language | Yes | |
| | | | Picture | Yes | |
| | | | Audio | Yes | |
| | | | Picture Preference | Yes | |
| | | Channel Setup | | Yes | |
| | | | TV/CATV | Yes | |
| | | | Auto CH Memory | Yes | |
| | | | Add/ Delete | Yes | |
| | | V-chip Setup | | Yes | |
| | | Tape Setup | | Yes | |
| | | | Timer Rec Set | Yes | |
| | | | Auto Repeat On/Off | Yes | |
| | | G-CODE(or SHOWVIEW or PLUSCODE)No. Entry | | | No |
| | | Clock / Date | | Yes | |
| | | TV/VCR | | Yes | |
| | | DVD | | Yes | |
| | | CH/AV(LINE) | | Yes | |
| | | Tape Counter(Linear Counter) | | Yes | |
| | | Tape Speed | | Yes | |
| | | Sleep Time | | Yes | |
| | | Stereo/Audio Output | | Yes | |
| | | | Bilingual | | No |
| | | | SAP | Yes | |
| | | Control Level | Volume | Yes | |
| | | | Brightness/Contrast/Sharpness/Color | Yes | |
| | | | Tint | Yes | |
| | | | Bass/Treble/Balance | Yes | |
| | | | Manual Tracking | Yes | |
| | | Play/Stop/FF/Rew/Rec/OTR/T-Rec/Pause/Eject/Tape In (Symbol Mark) | | Yes | |
| | | Auto Tracking/Manual Tracking | | Yes | |
| | | Caption / Text | | Yes | |
| | | Index | | | No |
| | | Mute | | Yes | |
| | | Hi-Fi | | Yes | |
| | | Repeat | | Yes | |
| | | Zero Return | | Yes | |
| | | DEW | | | No |

# GENERAL SPECIFICATIONS

| | | | | | | |
|---|---|---|---|---|---|---|
| G-11 | **On Screen Display (DVD)** | Menu (DVD) | | | Yes | |
| | | | Menu Type | | Character | |
| | | | Language | | Yes | |
| | | | | Menu | Yes | |
| | | | | Subtitle | Yes | |
| | | | | Audio | Yes | |
| | | | Picture | | Yes | |
| | | | | TV Screen Size | Yes | |
| | | | | OSD Display On/Off | Yes | |
| | | | | JPEG Interval | Yes | |
| | | | | Select Files | Yes | |
| | | | Sound | | Yes | |
| | | | | DRC (Dynamic Range Control) | Yes | |
| | | | | dts Decode | | No |
| | | | | Output(5.1ch/ 2ch) | | No |
| | | | | Surround On/Off | | No |
| | | | | Center On/Off | | No |
| | | | | Sub Woofer On/Off | | No |
| | | | Parental | | Yes | |
| | | | | Password Lock/ Un Lock | Yes | |
| | | | | Rating Level | Yes | |
| | | | Other | | Yes | |
| | | | | OSD Language(Set up Language) | Yes | |
| | | | | Output(RGB/Composite) | | No |
| | | | Open | | Yes | |
| | | | Close | | Yes | |
| | | | No disc | | Yes | |
| | | | Reading | | Yes | |
| | | | Play | | Yes | |
| | | | Still/Pause | | Yes | |
| | | | Stop | | Yes | |
| | | | Prohibit Mark | | Yes | |
| | | | Step | | Yes | |
| | | | Skip(>>\|) | | Yes | |
| | | | Skip(\|<<) | | Yes | |
| | | | Random | | Yes | (CD, VIDEO CD, MP3, WMA, JPEG ) |
| | | | Repeat | | Yes | |
| | | | Slow+ ## | | Yes | |
| | | | Slow- ## | | | No |
| | | | Search+ ## | | Yes | |
| | | | Search- ## | | Yes | |
| | | | Jump | | Yes | |
| | | | Resume | | Yes | |
| | | | Title No. | | Yes | |
| | | | Chapter No. | | Yes | |
| | | | Track No. | | Yes | |
| | | | Time | | Yes | |
| | | | Sub Title No. | | Yes | |
| | | | Angle No. | | Yes | |
| | | | Vocal On/Off | | Yes | |
| | | | Audio No. | | Yes | |
| | | | Audio Stereo L/R | | Yes | (Video CD) |
| | | | Zoom | | Yes | |
| | | | Marker No. | | | No |
| | | | Program Play Back | | Yes | (CD, VIDEO CD, MP3, WMA, JPEG ) |
| | | | Surround On/Off | | | No |
| | | | Screen Saver | | | No |
| | | | MP3, WMA, JPEG | Folder Name | Yes | |
| | | | | File Name | Yes | |
| | | | | File No | Yes | |
| | | | | Time | Yes | (MP3, WMA Only) |
| | | | | Track No | Yes | |
| G-12 | **OSD Language** | | TV/VCR | | English French Spanish | |
| | | | DVD | | English French Spanish | |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-13 | Clock,Timer and Timer Back-up | Calendar | | 1990/1/1 ~ 2081/12/31 | |
| | | Timer Events | | 8 Program/ 1 Month | |
| | | One Touch Recording Max Time | | 6 Hours | |
| | | OTPB Valid Time | | - | |
| | | Sleep Timer | Max Time | 120 | Min |
| | | | Step | 10 | Min |
| | | On/Off Timer | Program(On Timer / Off Timer) | 1 | Program |
| | | Auto Shut Off | No Signal | 15 | Min |
| | | | No Operation | - | Min |
| | | Timer Back-up (at Power Off Mode) | | 5 | Sec |
| G-14 | Remote Control Unit | Unit(for TOSHIBA) | | RC-FG | |
| | | Glow in Dark Remocon | | Yes | |
| | | Format | | NEC | |
| | | Custom Code | | 40-BFh,44-BBh | |
| | | Power Source | Voltage(D.C) | 3V | |
| | | | UM size x pcs | UM-4 x 2 pcs | |
| | | Total Keys | | 48 | Key |
| | | Keys | TV/VCR | Yes | |
| | | | DVD | Yes | |
| | | | Power | Yes | |
| | | | 1 | Yes | |
| | | | 2 | Yes | |
| | | | 3 | Yes | |
| | | | 4 | Yes | |
| | | | 5 | Yes | |
| | | | 6 | Yes | |
| | | | 7 | Yes | |
| | | | 8 | Yes | |
| | | | 9 | Yes | |
| | | | 0 | Yes | |
| | | | Channel- | Yes | |
| | | | Channel+ | Yes | |
| | | | Volume- | Yes | |
| | | | Volume+ | Yes | |
| | | | Display | Yes | |
| | | | Sleep | Yes | |
| | | | Audio Select | Yes | |
| | | | Mute | Yes | |
| | | | Channel Return / Skip- | Yes | |
| | | | Closed Caption / Skip+ | Yes | |
| | | | T-REC | Yes | |
| | | | Rec(T-Rec/OTR) | Yes | |
| | | | Rec/OTR | Yes | |
| | | | Slow+ | Yes | |
| | | | Play | Yes | |
| | | | Stop | Yes | |
| | | | Rew | Yes | |
| | | | F. Fwd | Yes | |
| | | | Pause / Still | Yes | |
| | | | CM Skip / Jump | Yes | |
| | | | SP/SLP / Return | Yes | |
| | | | Counter Reset / Angle | Yes | |
| | | | Zero Return / Subtitle | Yes | |
| | | | Input Select / Zoom | Yes | |
| | | | Menu /Set Up | Yes | |
| | | | Program / Repeat A-B | Yes | |
| | | | D.Tracking / Top Menu | Yes | |
| | | | Tracking+ / DVD Menu | Yes | |
| | | | Tracking- / Play Mode | Yes | |
| | | | Cancel/Clear | Yes | |
| | | | 3D Surround | No | |
| | | | Cursor Up | Yes | |
| | | | Cursor Down | Yes | |
| | | | Cursor Left | Yes | |
| | | | Cursor Right | Yes | |
| | | | Enter | Yes | |
| | | | VCR Plus+ | No | |
| | | | One More Search | No | |
| | | | Remain/Counter | No | |
| | | | Eject | No | |
| | | | Index- | No | |
| | | | Index+ | No | |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-15 | Features | Auto Head Cleaning | | Yes | |
| | | Auto Tracking | | Yes | |
| | | HQ (VHS Standard High Quality) | | Yes | |
| | | Auto Power On, Auto Play, Auto Rewind, Auto Eject | | Yes | |
| | | VIDEO PLUS+(SHOWVIEW,G-CODE) | | | No |
| | | Auto Clock | | Yes | |
| | | Forward / Reverse Picture Search | | Yes | |
| | | Auto CH Memory | | Yes | |
| | | Surround | | Yes | |
| | | Stable Sound | | Yes | |
| | | Closed Caption | | Yes | |
| | | TV Auto Shut off Function | | Yes | |
| | | End Call | | | No |
| | | Index Search | | | No |
| | | SQPB | | | No |
| | | CATV | | Yes | |
| | | CM Skip(30sec x 6 Times) | | Yes | |
| | | Comb Filter (2Lines) | | Yes | |
| | | VM Circuit | | Yes | |
| | | TV Monitor | | | No |
| | | Program Extend | | | No |
| | | Choke Coil | | | No |
| | | Energy Star | | Yes | |
| | | Protect of FBT Leak Circuit | | Yes | |
| | | Zero Return | | Yes | |
| | | Power On Memory | | | No |
| | | Dirty Head | | | No |
| | | V-chip | USA V-chip | Yes | |
| | | | CANADA V-chip | | No |
| | | Parental Lock | (DVD Only) | Yes | |
| | | Tray Lock | | Yes | |
| | | Auto Stop | (Pause, and Resume Stop after 5min.) | Yes | |
| | | Video CD Playback | | Yes | |
| | | SVCD Playback | | | No |
| | | | Overlay Graphics And Text | | No |
| | | | Command List | | No |
| | | | Entry Point Jump | | No |
| | | MP3 Playback | | Yes | |
| | | WMA Playback | | Yes | |
| | | JPEG Playback | | Yes | |
| | | Digital Out | (Dolby Digital) | Yes | |
| | | | (MPEG) | Yes | |
| | | | (PCM) | Yes | |
| | | | (DTS) | Yes | |
| | | Down Mix Out | (Dolby Digital) | Yes | |
| | | | (DTS) | | No |
| | | TruSurround | | | No |
| | | Screen Saver | | | No |
| | | Picture Preference | | Yes | |
| | | Auto Setup | | Yes | |
| | | Audio DAC | | 192kHz / 24bit | |
| | | Copy (Disc to Tape) | | Yes (by Conditioning) | |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| G-16 | **Accessories** | Owner's Manual | | Language | English |
| | | | | w/Guarantee Card | Yes |
| | | Remote Control Unit | | | Yes |
| | | Battery | | | Yes |
| | | | | UM size x pcs | UM-4 x 2 pcs |
| | | | | OEM Brand | No |
| | | Rod Antenna | | | No |
| | | | | Poles | - |
| | | | | Terminal | - |
| | | Loop Antenna | | | No |
| | | | | Terminal | - |
| | | U/V Mixer | | | No |
| | | 300 ohm to 75 ohm Antenna Adapter | | | Yes |
| | | Antenna Change Plug | | | No |
| | | DC Car Cord (Center+) | | | No |
| | | AC Plug Adapter | | | No |
| | | AC Cord | | | No |
| | | AV Cord (2Pin-1Pin) | | | No |
| | | Guarantee Card | | | No |
| | | Registration Card | | | Yes |
| | | ESP Card | | | No |
| | | Warning Sheet | | | No |
| | | Dew/AHC Caution Sheet | | | No |
| | | Quick Set-up Sheet | | | No |
| | | Circuit Diagram | | | No |
| | | Service Facility List | | | No |
| | | Important Safeguard | | | No |
| | | Sheet Information (Return) | | | Yes |
| G-17 | **Interface** | Switch | Front | Power (Tact) | Yes |
| | | | | Channel Up | Yes |
| | | | | Channel Down | Yes |
| | | | | Volume Up | Yes |
| | | | | Volume Down | Yes |
| | | | | Play (VCR) | Yes |
| | | | | Stop / Eject (VCR) | Yes |
| | | | | F.FWD/Cue (VCR) | Yes |
| | | | | Rew/Rev (VCR) | Yes |
| | | | | REC/OTR (VCR) | Yes |
| | | | | Play (DVD) | Yes |
| | | | | Stop (DVD) | Yes |
| | | | | Skip+ /Search+ (DVD) | Yes |
| | | | | Skip- /Search- (DVD) | Yes |
| | | | | Open/Close (DVD) | Yes |
| | | | | Input Select | No |
| | | | | Main Power SW | No |
| | | Indicator | | Power | Yes(Red) |
| | | | | REC/OTR | Yes(Red) |
| | | | | T-REC | Yes(Red) |
| | | | | TV/VCR | No |
| | | | | DVD | No |
| | | Terminals | Front | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | Other Terminal | HeadPhone (Stereo & Mono, 3.5mm) |
| | | | Rear | Video Input | RCA x 1 |
| | | | | Audio Input | RCA x 2(Stereo) |
| | | | | Video Output | RCA x1 |
| | | | | Audio Output | RCA x 2(Stereo) |
| | | | | Digital Audio Output | Coaxial (DVD Only) |
| | | | | VHF/UHF Antenna Input | F Type |
| | | | | AC Inlet | No |
| G-18 | **Set Size** | | | Approx. W x D x H (mm) | 740 x 493 x 645 |
| G-19 | **Weight** | | | Net (Approx.) | 44.0kg (97.0lbs) |
| | | | | Gross (Approx.) | 48.5kg (107.0lbs) |

# GENERAL SPECIFICATIONS

| | | | | | |
|---|---|---|---|---|---|
| **G-20** | **Carton** | Master Carton | | No | |
| | | | Content | - | |
| | | | Material | - | |
| | | | Dimensions W x D x H(mm) | - | |
| | | | Description of Origin | - | |
| | | Gift Box | | Yes | |
| | | | Material | Double/White | |
| | | | Dimensions W x D x H(mm) | 851 x 618 x 776 | |
| | | | Design | As per Buyer's | |
| | | | Description of Origin | Yes | |
| | | Drop Test | Natural Dropping At | 1 Corner / 3 Edges / 6 Surfaces | |
| | | | Height (cm) | 25 | |
| | | Container Stuffing(40' container) | | 156 | Sets |
| **G-21** | **Material** | Cabinet | Front | PS | 94V0 DECABROM |
| | | | Rear | PS | 94V0 DECABROM |
| | | | Jack Panel | - | |
| | | PCB | Non-Halogen Demand | No | |
| | | | Eyelet Demand | Yes | |
| **G-22** | **Environment** | Pb Free | Lead-free Solder | No | |
| | | | Other | No | |
| | | Cd Free | | No | |

# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF MECHANICAL PARTS AND P.C. BOARDS

### 1-1: BACK CABINET (Refer to Fig. 1-1)

1. Remove the 6 screws ①.
2. Remove the 2 screws ②.
3. Remove the Back Cabinet in the direction of arrow.

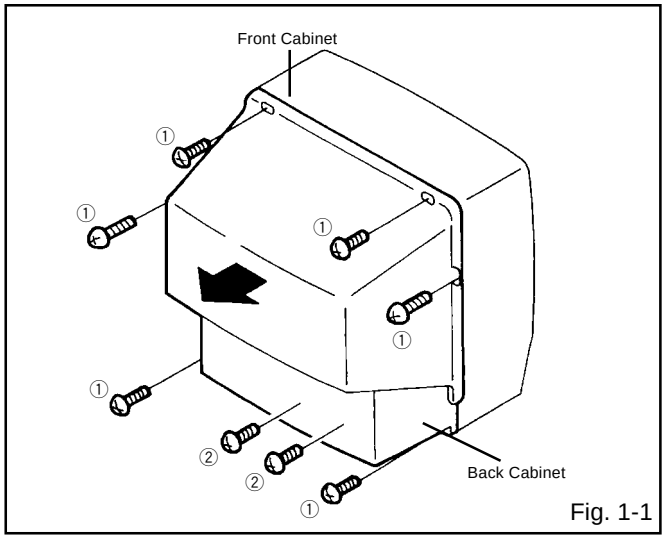


Fig. 1-1

### 1-2: CRT PCB (Refer to Fig. 1-2)

**CAUTION: BEFORE REMOVING THE ANODE CAP, DISCHARGE ELECTRICITY BECAUSE IT CONTAINS HIGH VOLTAGE. BEFORE ATTEMPTING TO REMOVE OR REPAIR ANY PCB, UNPLUG THE POWER CORD FROM THE AC SOURCE.**

1. Remove the Anode Cap.
   (Refer to REMOVAL OF ANODE CAP)
2. Disconnect the following connectors:
   (CP801B, CP802B, CP803, CP851B and CP852).
3. Remove the CRT PCB in the direction of arrow.

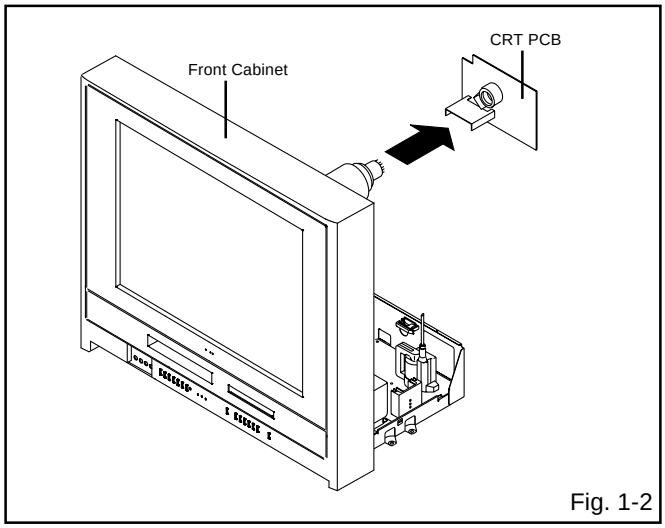


Fig. 1-2

### 1-3: TV/DVD/VCR BLOCK (Refer to Fig. 1-3)

1. Remove the 2 screws ①.
2. Disconnect the following connectors:
   (CP303, CP404 and CP1704).
3. Remove the TV/DVD/VCR Block in the direction of arrow.

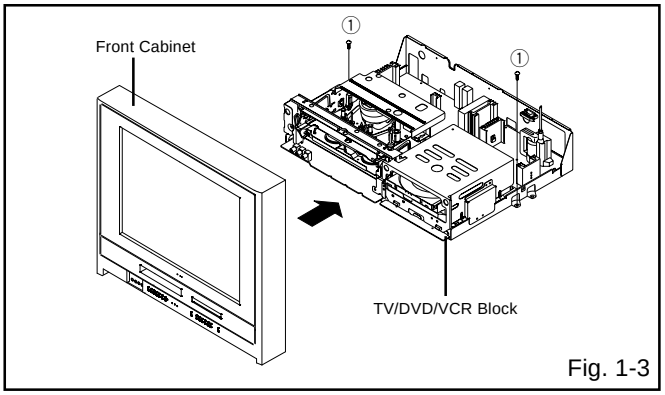


Fig. 1-3

### 1-4: VCR DECK (Refer to Fig. 1-4)

**NOTE**

Do not remove the cable at the FE Head section. The FE Head may be damaged if you remove the cable by force.

1. Remove the 2 screws ①.
2. Remove the VCR Top.
3. Remove the 2 screws ②.
4. Remove the VCR Holder.
5. Move the Cassette Holder Ass'y to the back side.
6. Remove the 3 screws ③.
7. Remove the 2 screws ④.
8. Remove the Deck Shield Cover.
9. Remove the screw ⑤.
10. Remove the FE Head.
11. Disconnect the following connectors:
    (CP101, CP4501 and CP4502).
12. Remove the VCR Deck in the direction of arrow.

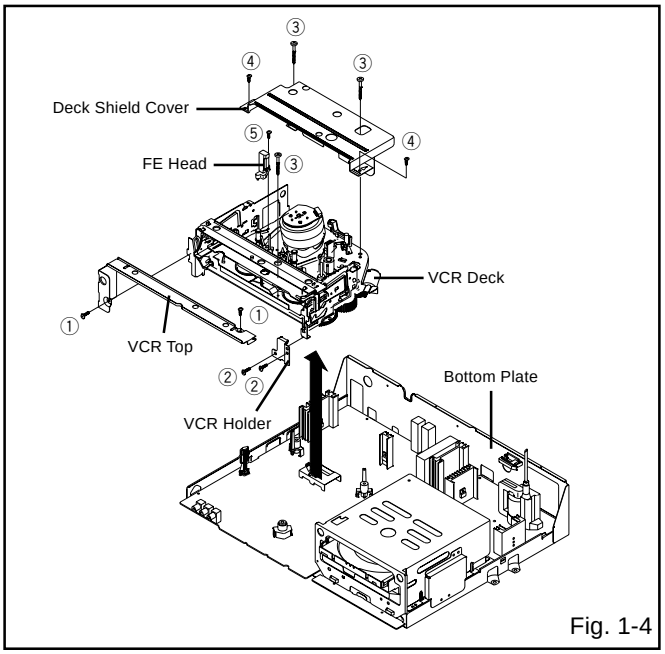


Fig. 1-4

# DISASSEMBLY INSTRUCTIONS

### 1-5: VCR PCB (Refer to Fig. 1-5)

1. Remove the 6 screws ①.
2. Remove the screw ②.
3. Remove the AV Jack Shield.
4. Disconnect the following connectors:
   (CP001, CP604, CP602B, CP2201, CP8001 and CP8002).
5. Remove the VCR PCB in the direction of arrow.

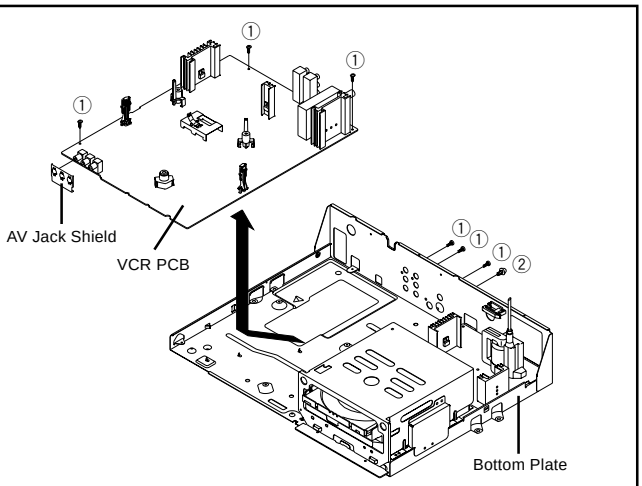



Fig. 1-5

### 1-6: VCR DECK (Refer to Fig. 1-6)

1. Remove the 2 screws ①.
2. Remove the DVD Shield.
3. Remove the 4 screws ②.
4. Remove the DVD Block in the direction of arrow (A).
5. Remove the 2 screws ③.
6. Remove the Operation PCB in the direction of arrow (B).

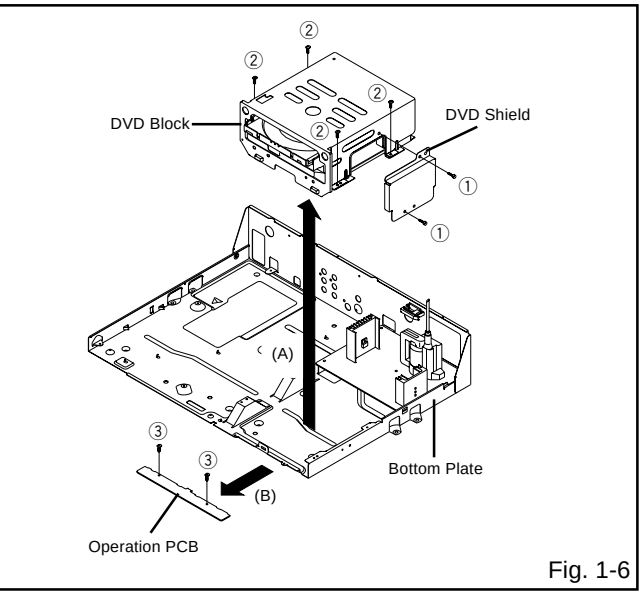



Fig. 1-6

### 1-7: DVD PCB/DVD DECK (Refer to Fig. 1-7)

1. Make the short circuit on the position as shown **Fig. 1-7** using a soldering. If you remove the DVD Deck with no soldering, the Laser may be damaged.
2. Remove the 3 screws ①.
3. Remove the DVD Top in the direction of arrow (A).
4. Disconnect the following connectors:
   (CP2601, CP2602 and CP2603).
5. Remove the 4 screws ②.
6. Remove the DVD Deck in the direction of arrow (B).
7. Remove the 4 screws ③.
8. Remove the DVD PCB in the direction of arrow (C).

**NOTE**

When the installation of the DVD Deck, remove all the soldering on the short circuit position after the connection of Pick Up PCB and DVD PCB connector.

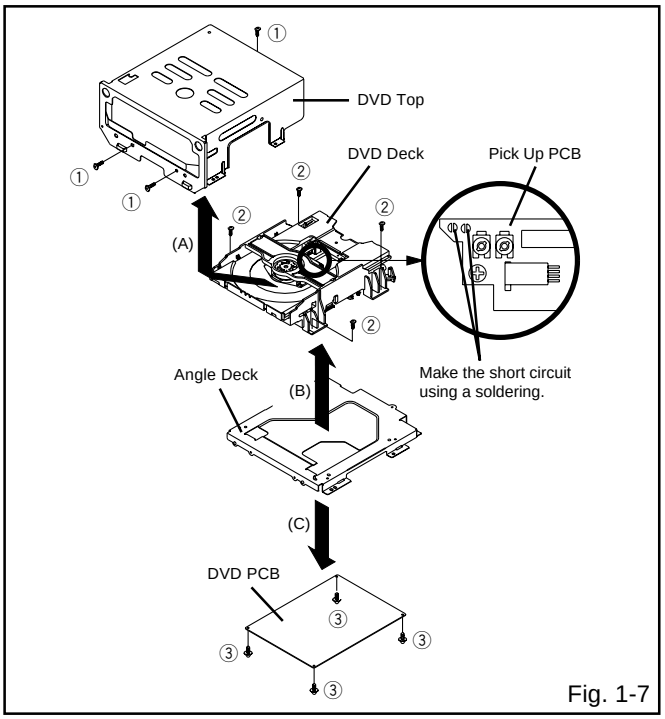



Fig. 1-7

### 1-8: DEFLECTION PCB (Refer to Fig. 1-8)

1. Remove the 2 screws ①.
2. Remove the 3 screws ②.
3. Remove the Deflection PCB in the direction of arrow.

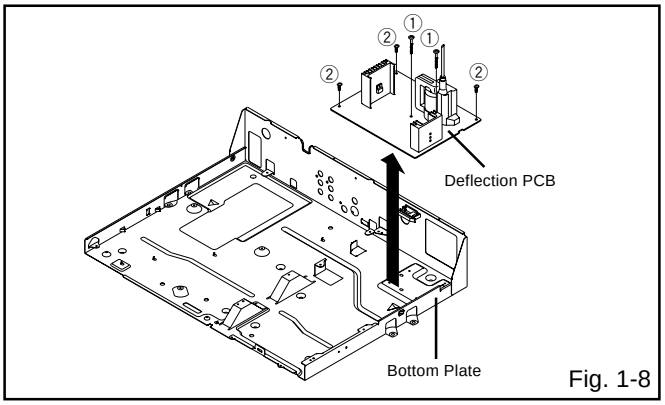



Fig. 1-8

# DISASSEMBLY INSTRUCTIONS

## 2. REMOVAL OF VCR DECK PARTS

### 2-1: TOP BRACKET (Refer to Fig. 2-1)

1. Extend the 2 supports ①.
2. Slide the 2 supports ② and remove the Top Bracket.

**NOTE**

1. After the installation of the Top Bracket, bend the support ① so that the Top Bracket is fixed.

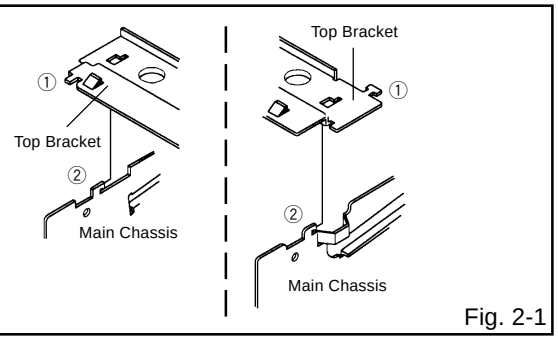


Fig. 2-1

### 2-2: CASSETTE HOLDER ASS'Y (Refer to Fig. 2-2)

1. Move the Cassette Holder Ass'y to the front side.
2. Push the Locker R to remove the Cassette Side R.
3. Remove the Cassette Side L.

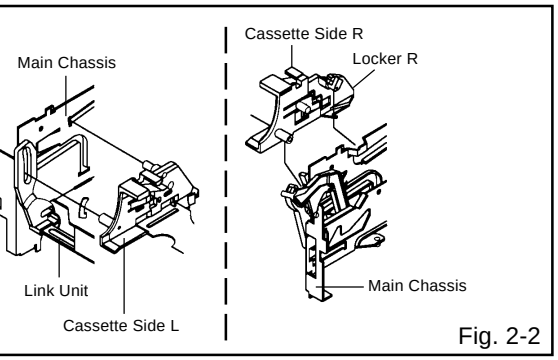


Fig. 2-2

### 2-3: CASSETTE SIDE L/R (Refer to Fig. 2-3-A)

1. Remove the Locker Spring.
2. Unlock the 4 supports ① and then remove the Cassette Side L/R.
3. Unlock the support ② and then remove the Locker R.

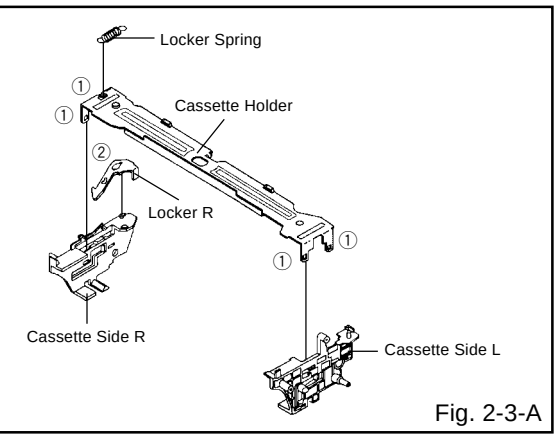


Fig. 2-3-A

**NOTE**

1. In case of the Locker R installation, check if the one position of Fig. 2-3-B are correctly locked.
2. When you install the Cassette Side R, be sure to move the Locker R after installing.

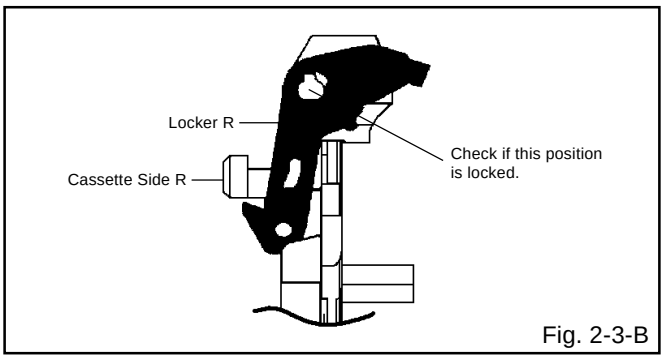


Fig. 2-3-B

### 2-4: LINK UNIT (Refer to Fig. 2-4)

1. Set the Link Unit to the Eject position.
2. Unlock the support ①.
3. Remove the (A) side of the Link Unit first, then remove the (B) side.

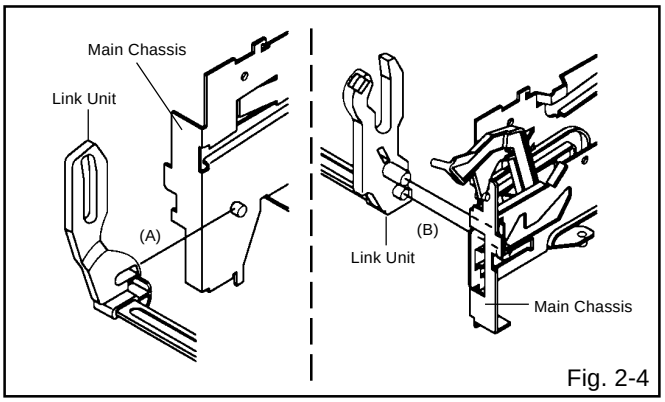


Fig. 2-4

### 2-5: LINK LEVER/FLAP LEVER (Refer to Fig. 2-5)

1. Extend the support ①.
2. Remove the Link Lever.
3. Remove the Flap Lever.

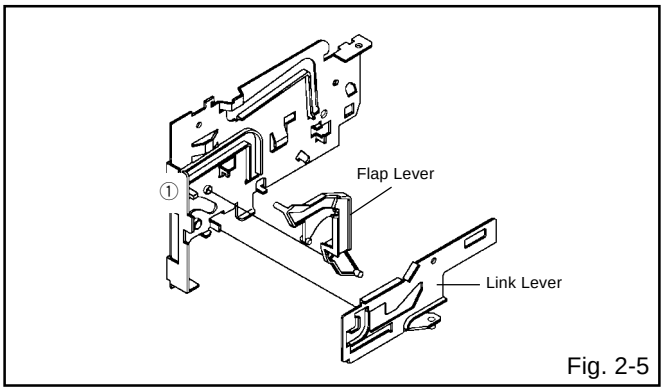


Fig. 2-5

# DISASSEMBLY INSTRUCTIONS

### 2-6: LOADING MOTOR/WORM (Refer to Fig. 2-6-A)

1. Remove the screw ①.
2. Remove the Loading Motor.
3. Remove the Worm.

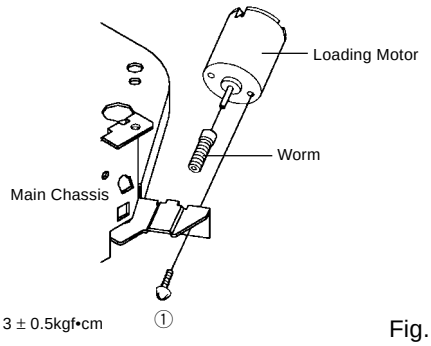



Fig. 2-6-A

**NOTE**

1. In case of the Worm installation, check if the value of the Fig. 2-6-B is correct.
2. In case of the Loading Motor installation, hook the wire on the Cassette Opener as shown Fig. 2-6-C.
3. When installing the wires between Capstan DD Unit and Loading Motor, connect them correctly as shown Fig. 2-6-D.

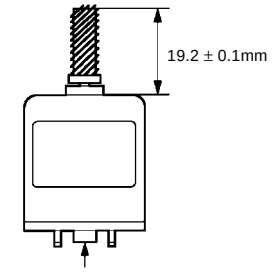



Fig. 2-6-B

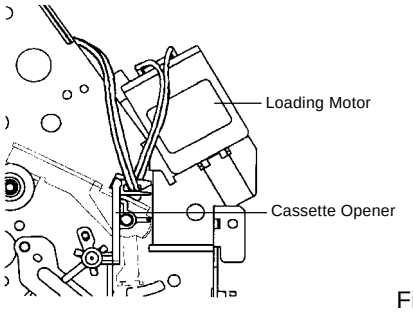



Fig. 2-6-C

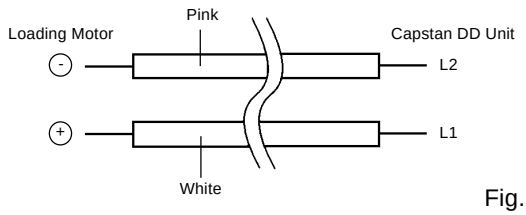



Fig. 2-6-D

### 2-7: TENSION ASS'Y (Refer to Fig. 2-7-B)

1. Turn the Pinch Roller Cam clockwise so that the Tension Holder hook is set to the position of Fig. 2-7-A to move the Tension Arm Ass'y.
2. Remove the Tension Spring.
3. Unlock the 2 supports ① and remove the Tension Band.
4. Unlock the support ② and remove the Tension Arm Ass'y.
5. Unlock the support ③ and remove the Tension Connect.
6. Float the hook ④ and turn it clockwise then remove the Tension Holder.

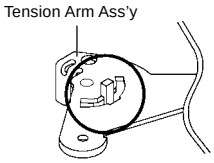



Fig. 2-7-A

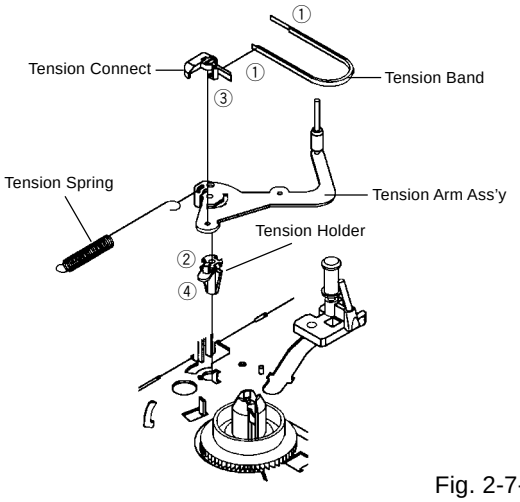



Fig. 2-7-B

**NOTE**

1. In case of the Tension Band installation, note the direction of the installation. **(Refer to Fig. 2-7-C)**
2. In case of the Tension Band installation, install correctly as Fig. 2-7-D.
3. In case of the Tension Connect installation, install as the circled section of Fig. 2-7-E.

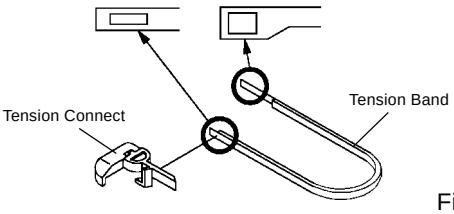



Fig. 2-7-C

# DISASSEMBLY INSTRUCTIONS

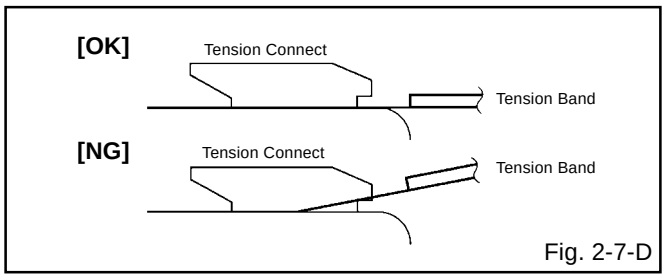


Fig. 2-7-D

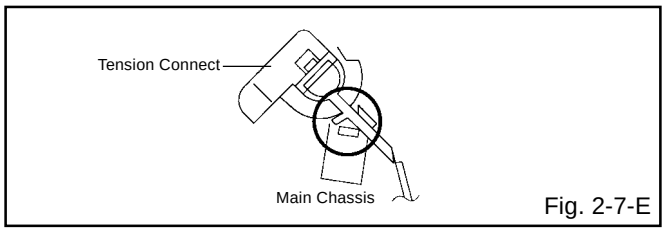


Fig. 2-7-E

**2-8: T BRAKE ARM/T BRAKE BAND (Refer to Fig. 2-8-A)**

1. Remove the T Brake Spring.
2. Turn the T Brake Arm clockwise and bend the hook section to remove it.
3. Unlock the 2 supports ① and remove the T Brake Band.

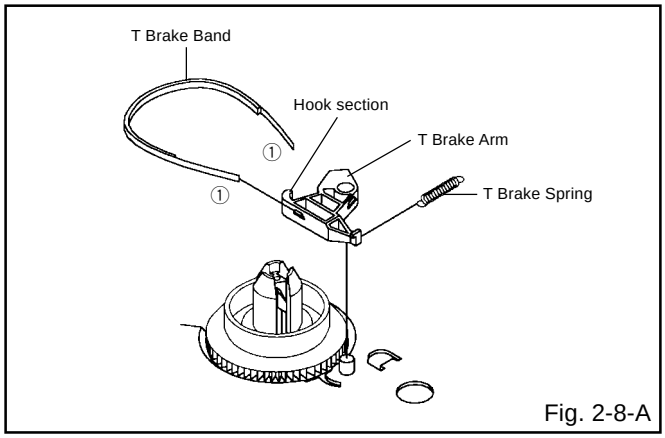


Fig. 2-8-A

**NOTE**

1. In case of the T Brake Band installation, install correctly as Fig. 2-8-B.

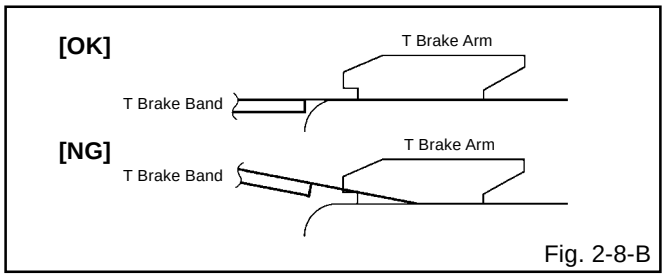


Fig. 2-8-B

**2-9: S REEL/T REEL/IDLER ARM ASS'Y/IDLER GEAR (Refer to Fig. 2-9-A)**

1. Remove the S Reel and T Reel.
2. Remove the 2 Polyslider Washers ①.
3. Remove the Idler Arm Ass'y and Idler Gear.

**NOTE**

1. Take care not to damage the gears of the S Reel and T Reel.
2. The Polyslider Washer may be remained on the back of the reel.
3. Take care not to damage the shaft.
4. Do not touch the section "A" of S Reel and T Reel. (Use gloves.) **(Refer to Fig. 2-9-A)** Do not adhere the stains on it.
5. When you install the reel, clean the shaft and grease it. (If you do not grease, noise may be heard in FF/REW mode.)
6. After installing the reel, adjust the height of the reel. **(Refer to MECHANICAL ADJUSTMENT)**

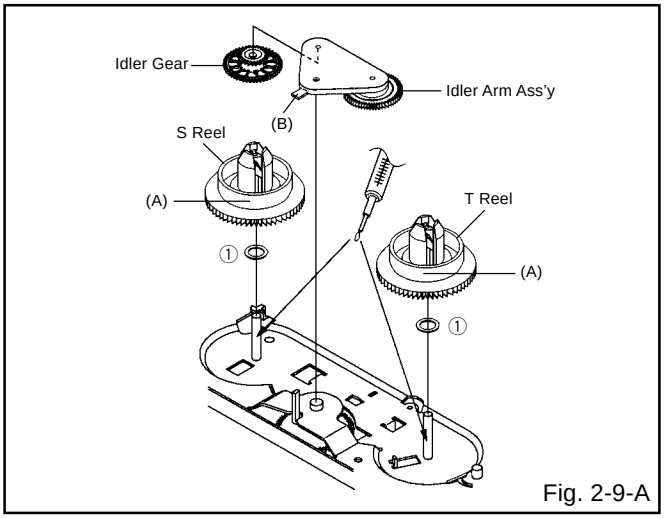


Fig. 2-9-A

**NOTE**

1. In case of the S Reel and T Reel installation, check if the correct parts are installed. **(Refer to Fig. 2-9-B)**
2. In case of the Idler Arm Ass'y installation, install correctly as Fig. 2-9-C. And also set it so that the section "B" of Fig. 2-9-A is placed under the Main Chassis tab.

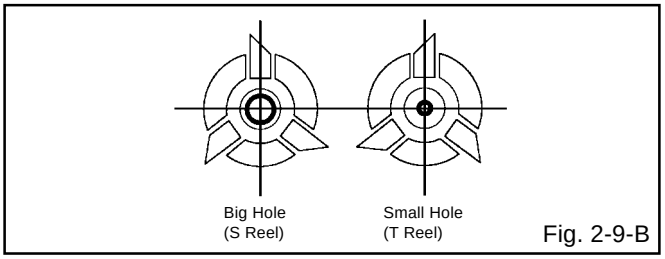


Fig. 2-9-B

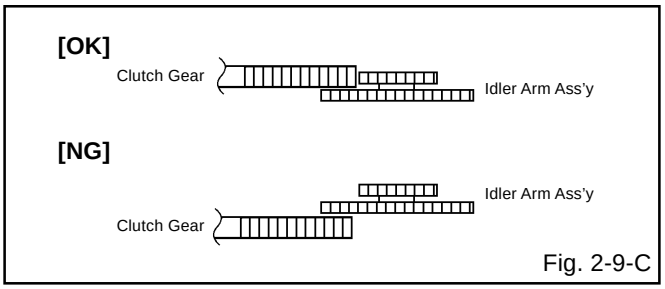


Fig. 2-9-C

# DISASSEMBLY INSTRUCTIONS

### 2-10: CASSETTE OPENER/PINCH ROLLER BLOCK/P5 ARM ASS'Y (Refer to Fig. 2-10-A)

1. Unlock the support ① and remove the Cassette Opener.
2. Remove the Pinch Roller Block and P5 Arm Ass'y.

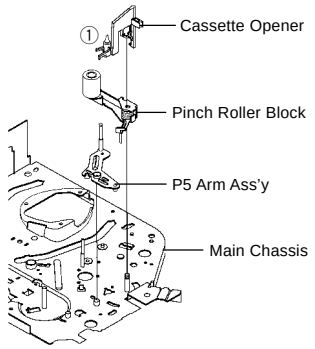



Fig. 2-10-A

**NOTE**

1. Do not touch the Pinch Roller. (Use gloves.)
2. In case of the Pinch Roller Block and the Pinch Roller Cam installation, install correctly as Fig. 2-10-B.

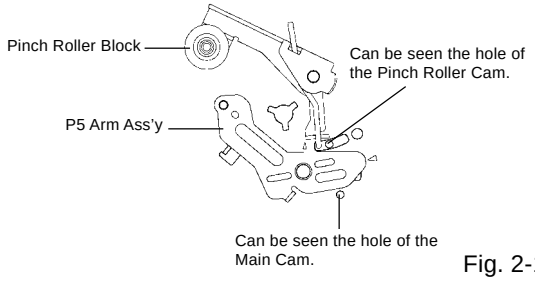


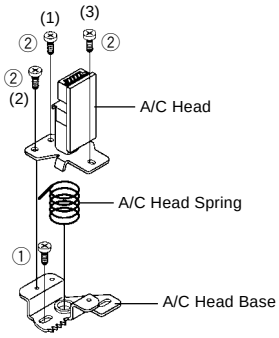

Fig. 2-10-B

### 2-11: A/C HEAD (Refer to Fig. 2-11-A)

1. Remove the screw ①.
2. Remove the A/C Head Base.
3. Remove the 3 screws ②.
4. Remove the A/C Head and A/C Head Spring.

**NOTE**

1. Do not touch the A/C Head. (Use gloves.)
2. When you install the A/C Head Spring, install as shown in Fig. 2-11-B.
3. When you install the A/C Head, tighten the screw (1) first, then tighten the screw (2), finally tighten the screw (3).




• Screw Torque: 5 ± 0.5kgf•cm (Screw ①)

Fig. 2-11-A

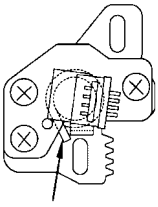
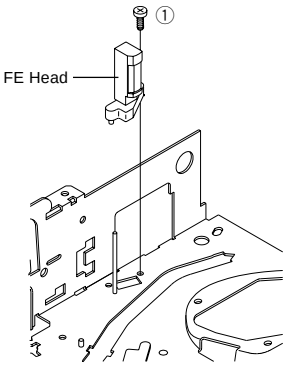



Fig. 2-11-B

### 2-12: FE HEAD (RECORDER ONLY) (Refer to Fig. 2-12)

1. Remove the screw ①.
2. Remove the FE Head.




• Screw Torque: 5 ± 0.5kgf•cm
• The FE Head is not installed on the Video Cassette Player.

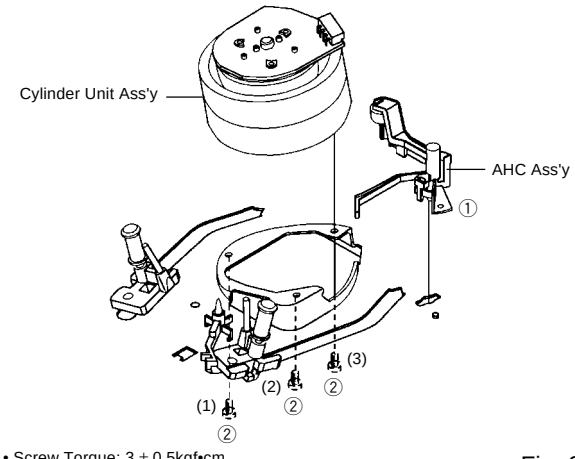
Fig. 2-12

### 2-13: AHC ASS'Y/CYLINDER UNIT ASS'Y (Refer to Fig. 2-13)

1. Unlock the support ① and remove the AHC Ass'y.
2. Disconnect the following connector: (CD2001)
3. Remove the 3 screws ②.
4. Remove the Cylinder Unit Ass'y.

**NOTE**

1. When you install the Cylinder Unit Ass'y, tighten the screws from (1) to (3) in order while pulling the Ass'y toward the left front direction.



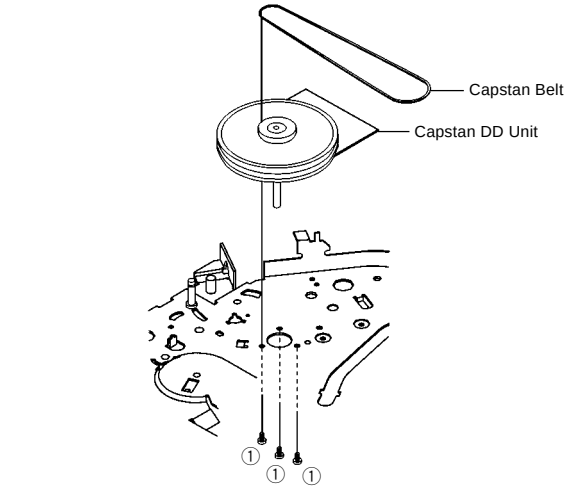

• Screw Torque: 3 ± 0.5kgf•cm

Fig. 2-13

# DISASSEMBLY INSTRUCTIONS

**2-14: CAPSTAN DD UNIT (Refer to Fig. 2-14-A)**

1. Remove the Capstan Belt.
2. Remove the 3 screws ①.
3. Remove the Capstan DD Unit.




• Screw Torque: 4 ± 0.5kgf•cm

Fig. 2-14-A

**NOTE**

1. In case of the Capstan DD Unit installation, apply the silicon bond (TSE3843-W) on the position Fig. 2-14-B correctly. (If no silicon bond applied, abnormal noise will be heard on the deck operation.) **(Refer to Fig. 2-14-B, C)**

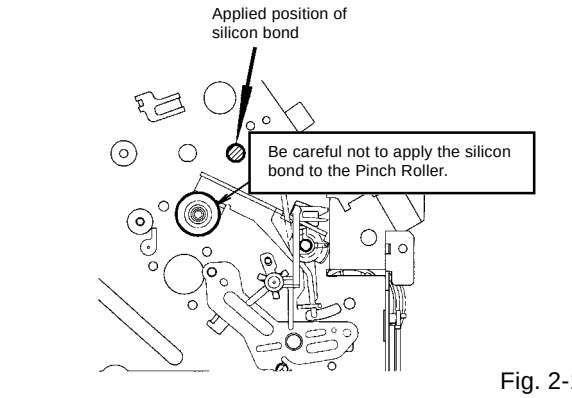



Fig. 2-14-B

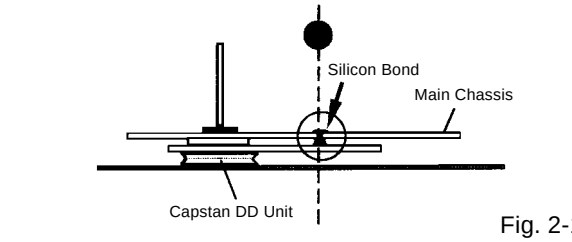



Fig. 2-14-C

**2-15: MAIN CAM/PINCH ROLLER CAM/JOINT GEAR (Refer to Fig. 2-15-A)**

1. Remove the E-Ring ①, then remove the Main Cam.
2. Remove the E-Ring ②, then remove the Pinch Roller Cam and Joint Gear.

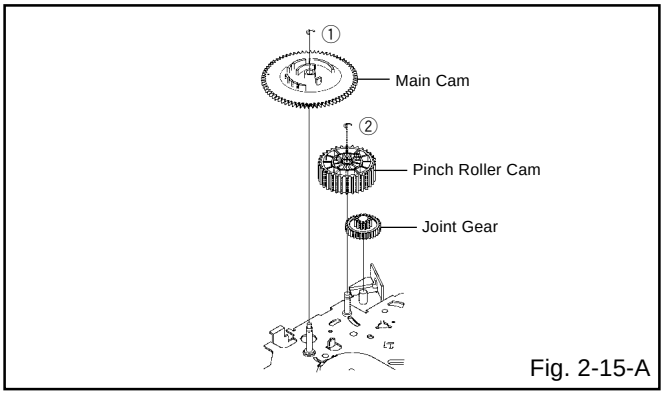



Fig. 2-15-A

**NOTE**

1. In case of the Pinch Roller Cam and Main Cam installation, install them as the circled section of Fig. 2-15-B so that the each markers are met. **(Refer to Fig. 2-15-B)** And also can be seen the Main Chassis hole through the Main Cam maker hole.

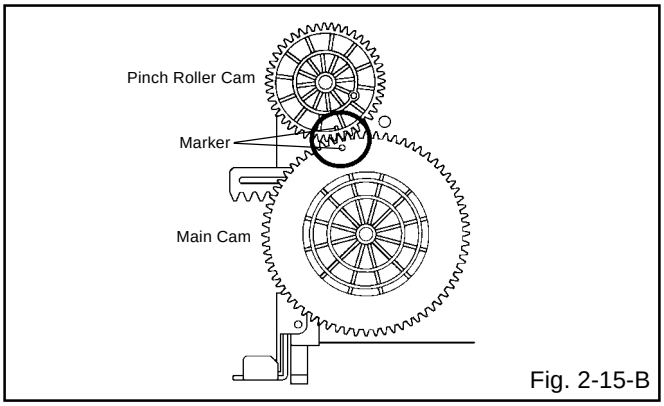



Fig. 2-15-B

**2-16: LOADING GEAR S/T UNIT (Refer to Fig. 2-16-A)**

1. Remove the E-Ring ① and remove the Main Loading Gear.
2. Remove the Main Rod, Tension Lever, Loading Arm S Unit and Loading Arm T Unit.

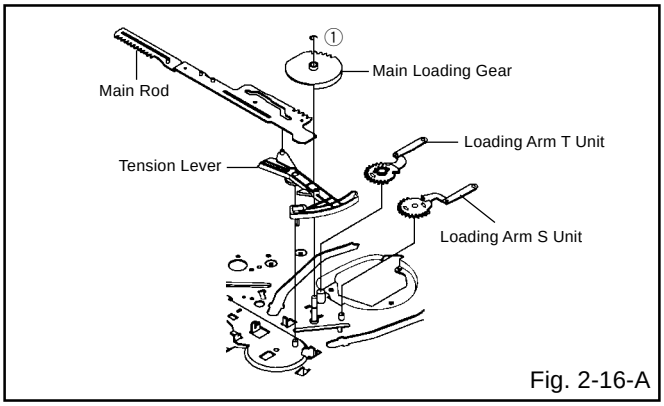



Fig. 2-16-A

# DISASSEMBLY INSTRUCTIONS

**NOTE**

1. When you install the Loading Arm S Unit, Loading Arm T Unit and Main Loading Gear, align each marker. **(Refer to Fig. 2-16-B)**

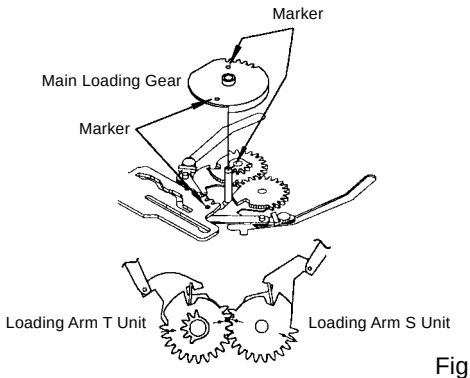



Fig. 2-16-B

**2-17: CLUTCH ASS'Y/RING SPRING/CLUTCH LEVER/ CLUTCH GEAR (Refer to Fig. 2-17-A)**

1. Remove the Polyslider Washer ①.
2. Remove the Clutch Ass'y and Ring Spring.
3. Remove the Clutch Lever.
4. Remove the Coupling Gear, Coupling Spring and Clutch Gear.

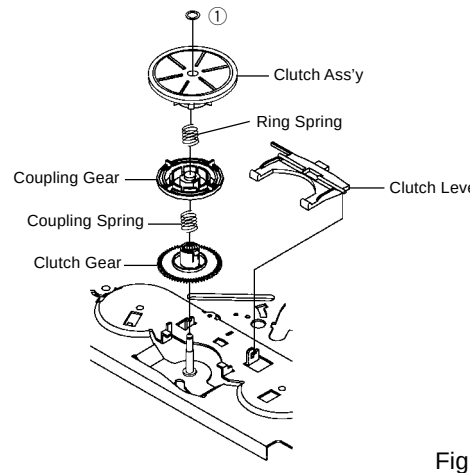



Fig. 2-17-A

**NOTE**

1. In case of the Clutch Ass'y installation, install it with inserting the spring of the Clutch Ass'y into the dent of the Coupling Gear. **(Refer to Fig. 2-17-B)**

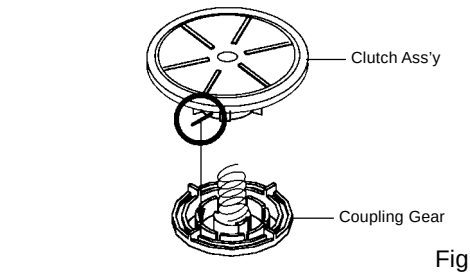



Fig. 2-17-B

**2-18: CASSETTE GUIDE POST/INCLINED BASE S/T UNIT/P4 CAP (Refer to Fig. 2-18-A)**

1. Remove the P4 Cap.
2. Unlock the support ① and remove the Cassette Guide Post.
3. Remove the Inclined Base S/T Unit.
4. Remove the screw ②.
5. Remove the LED Reflector.

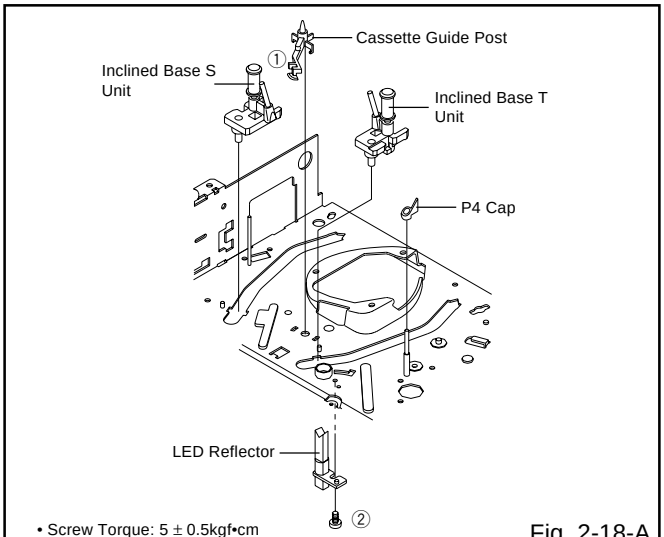



Fig. 2-18-A

**NOTE**

1. Do not touch the roller of Guide Roller.
2. In case of the P4 Cap installation, install it with parallel for "A" and "B" of Fig. 2-18-B.
3. In case of the Cassette Guide Post installation, install correctly as the circled section of Fig. 2-18-C.

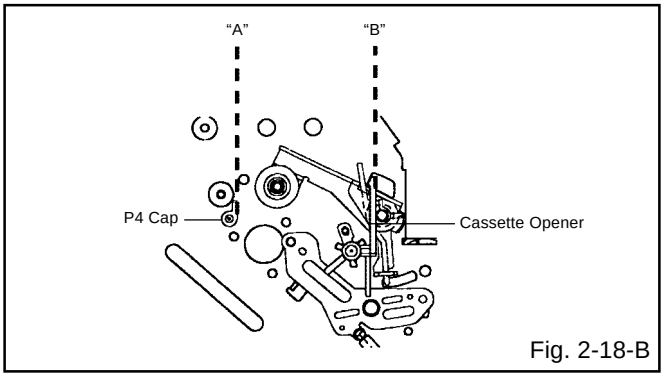



Fig. 2-18-B

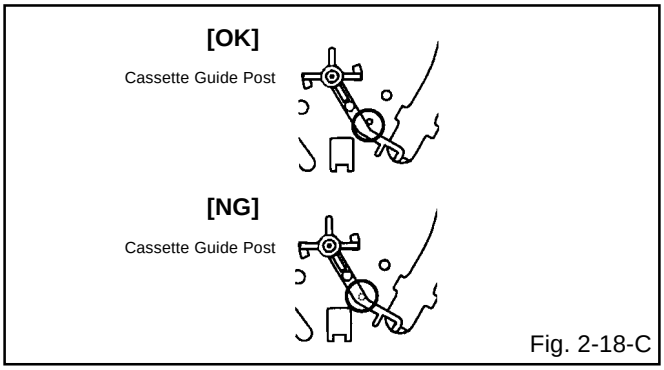



Fig. 2-18-C

# DISASSEMBLY INSTRUCTIONS

## 3. REMOVAL OF DVD DECK PARTS

**NOTE**

1. Do not disassemble the DVD DECK PARTS except listed parts here. Minute adjustments are needed if the disassemble is done. If the repair is needed except listed parts, replace the DVD MECHA ASS'Y.

**3-1: TRAY (Refer to Fig. 3-1-A)**

1. Set the Tray opened. **(Refer to the DISC REMOVAL METHOD AT NO POWER SUPPLY)**
2. Unlock the support ① and remove the Tray.

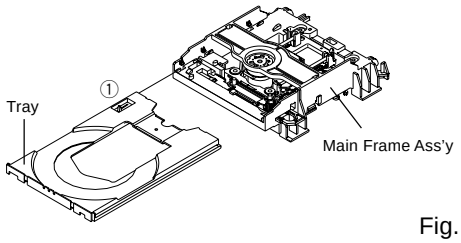



Fig. 3-1-A

**NOTE**

1. In case of the Tray installation, install them as the circled section of Fig. 3-1-B so that the each markers are met.

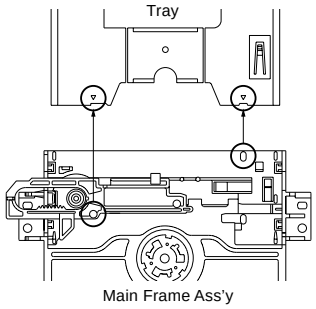



Fig. 3-1-B

**3-2: MAIN CHASSIS ASS'Y (Refer to Fig. 3-2-A)**

1. Remove the Main Chassis Ass'y from the Insulator (R).
2. Unlock the support ①.
3. Remove the Main Chassis Ass'y.

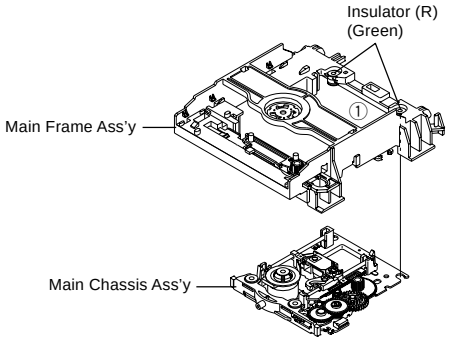



Fig. 3-2-A

**NOTE**

1. In case of the Main Chassis Ass'y, install it from (1) to (6) in order. **(Refer to Fig. 3-2-B)**

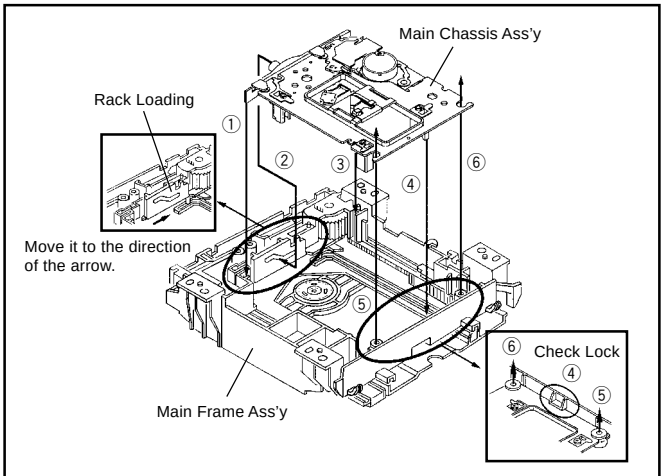



Fig. 3-2-B

**3-3: RACK LOADING/MAIN GEAR/ RACK LOADING SPRING/ RACK L SPRING (Refer to Fig. 3-3)**

1. Remove the Rack L Spring.
2. Press down the catcher ① and slide the Rack Loading.
3. Remove the Rack Loading, Rack Loading Spring and Main Gear.

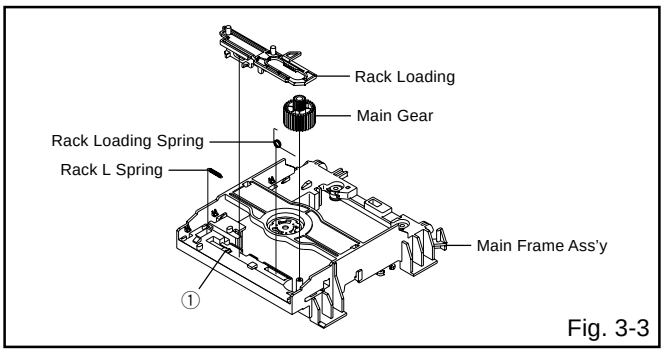



Fig. 3-3

**3-4: CLAMPER ASS'Y/INSULATOR(R)/LEVER SWITCH (Refer to Fig. 3-4-A)**

1. Remove the screw ①.
2. Remove the Lever Switch.
3. Remove the 2 Insulator (R).
4. Press the Clamper and rotate the Clamper Plate clockwise, then unlock the 3 supports ②.
5. Remove the Clamper Plate, Clamper Magnet and Clamper.

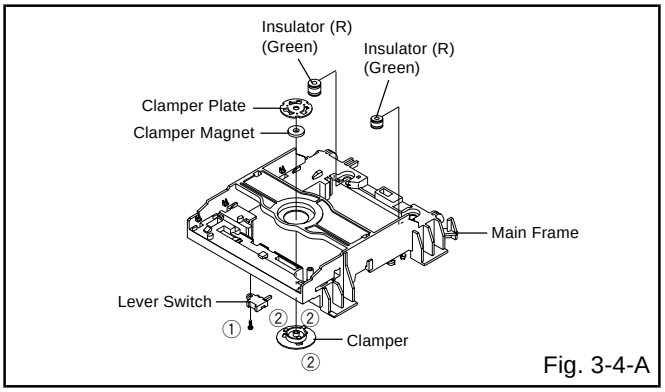



Fig. 3-4-A

# DISASSEMBLY INSTRUCTIONS

**NOTE**

1. When installing the Clamper Magnet, install it with the green face up.
2. When installing the wire of the Lever Switch, install it correctly as Fig. 3-4-B.
3. When installing the Lever Switch, install it correctly as Fig. 3-4-C.
4. In case of the Lever Switch installation, hook the wire on the Main Frame as shown Fig. 3-4-D.

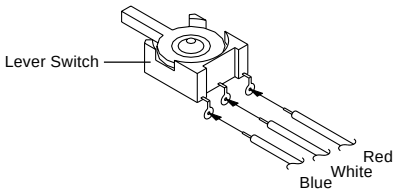


Fig. 3-4-B

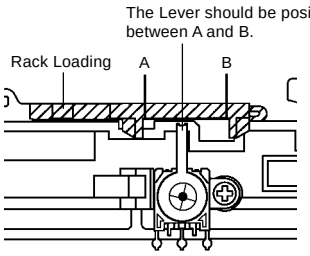


Fig. 3-4-C

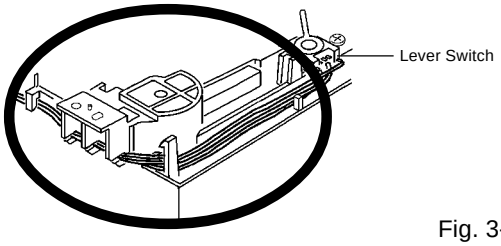


Fig. 3-4-D

**3-5: TRAVERSE HOLDER/INSULATOR (F) (Refer to Fig. 3-5-A)**

1. Remove the Traverse Holder.
2. Remove the 2 Insulator (F).

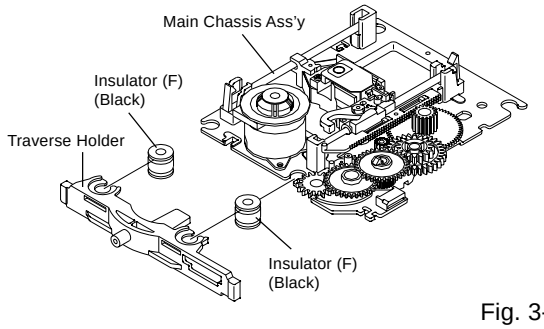


Fig. 3-5-A

**NOTE**

1. After the installing of the Traverse Holder, check if the wire is like Fig. 3-5-B.

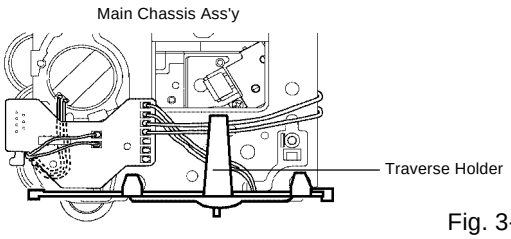


Fig. 3-5-B

**3-6: SWITCH PCB ASS'Y (Refer to Fig. 3-6-A)**

1. Remove the screw ①.
2. Remove the Switch PCB Ass'y.

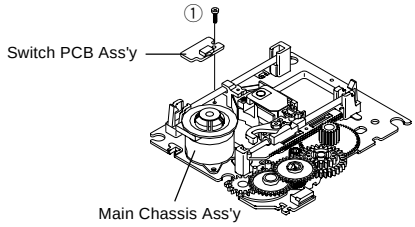


Fig. 3-6-A

**NOTE**

1. When installing the wire of the Switch PCB, install it correctly as Fig. 3-6-B.

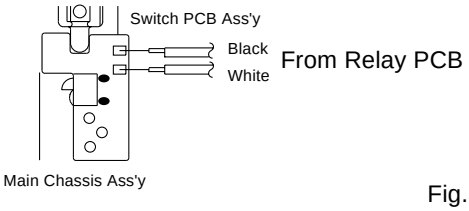


Fig. 3-6-B

**3-7: RACK FEED ASS'Y (Refer to Fig. 3-7-A)**

1. Remove the screw ①.
2. Remove the Rack Feed 1 Spring, Rack Feed 1/2 and Rack Feed Lever.

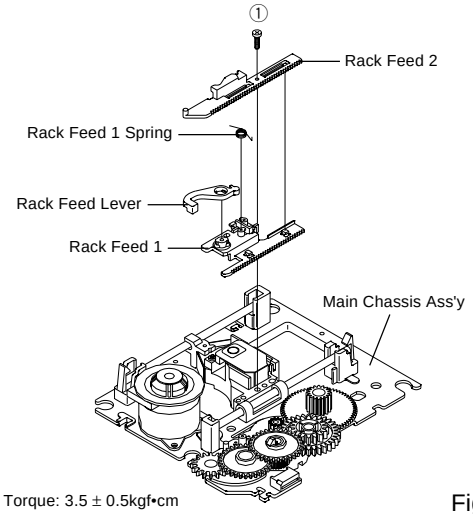


Fig. 3-7-A

# DISASSEMBLY INSTRUCTIONS

**NOTE**

1. After the assembly of the Rack Feed, check if the Rack Feed 1/2 is moving smoothly. **(Refer to Fig. 3-7-B)**
2. In case of the Rack Feed Ass'y installation, install correctly as Fig. 3-7-C.

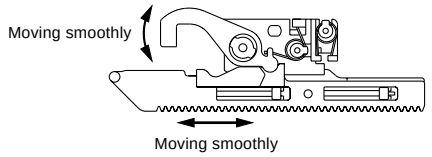


Fig. 3-7-B

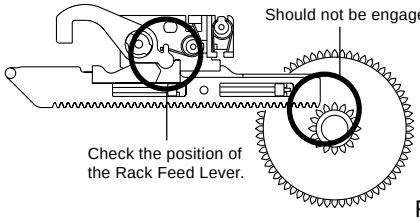


Fig. 3-7-C

**3-8: RELAY PCB ASS'Y (Refer to Fig. 3-8-A)**

1. Remove the screw ①.
2. Remove the Relay PCB Ass'y.

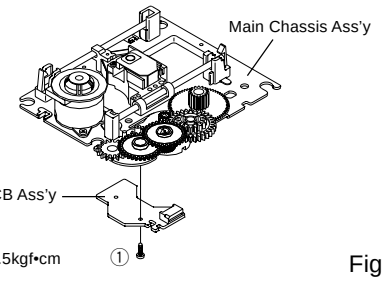


Fig. 3-8-A

**NOTE**

1. When installing the wire of the Relay PCB, install it correctly as Fig. 3-8-B.

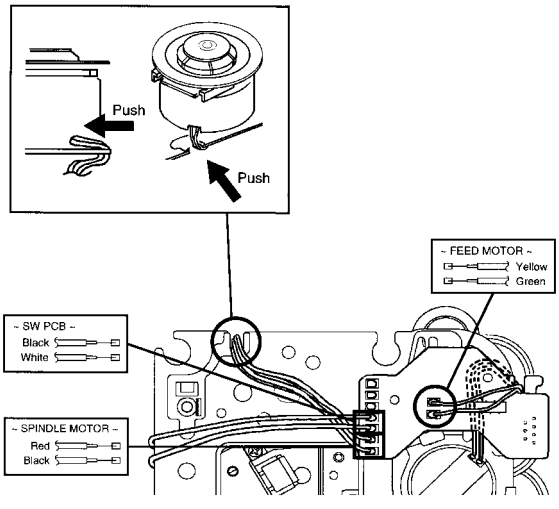


Fig. 3-8-B

**3-9: GEAR (Refer to Fig. 3-9-A)**

1. Unlock the support ①.
2. Remove the Middle Gear 1/2/3, Idler Gear and Feed Gear.

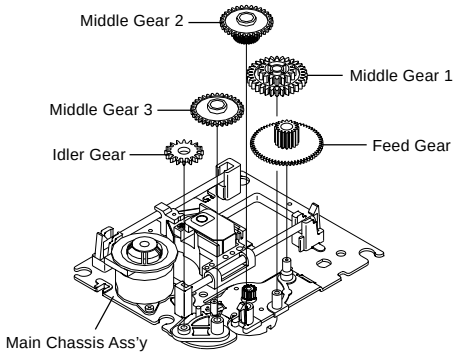


Fig. 3-9-A

**NOTE**

1. In case of the Idler Gear installation, install correctly as Fig. 3-9-B.
2. When installing the Middle Gear 2, check if the Middle Gear 2 is locked correctly as Fig. 3-9-C.

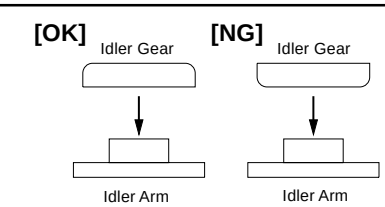


Fig. 3-9-B

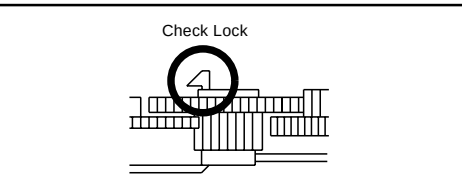


Fig. 3-9-C

**3-10: IDLER ARM (Refer to Fig. 3-10)**

1. Remove the Idler Arm.

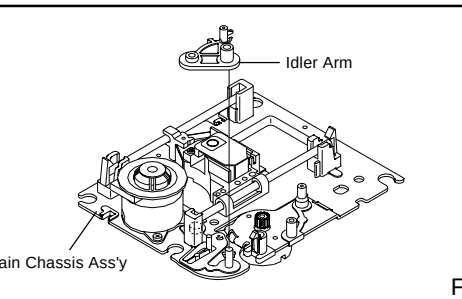
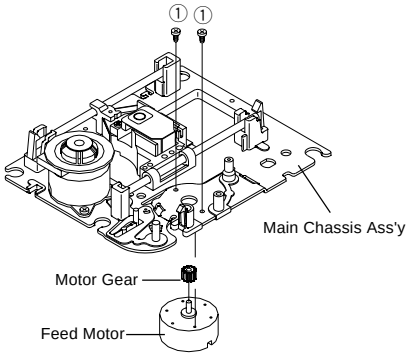


Fig. 3-10

# DISASSEMBLY INSTRUCTIONS

**3-11: FEED MOTOR (Refer to Fig. 3-11-A)**

1. Remove the 2 screws ①.
2. Remove the Feed Motor.
3. Remove the Motor Gear.




• Screw Torque: 1 ± 0.5kgf•cm

Fig. 3-11-A

**NOTE**

1. In case of the Motor Gear installation, check if the value of the Fig. 3-11-B is correct.
2. When installing the Feed Motor, check if the cable is positioned as Fig. 3-11-C.

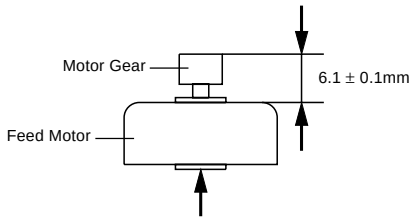



Fig. 3-11-B

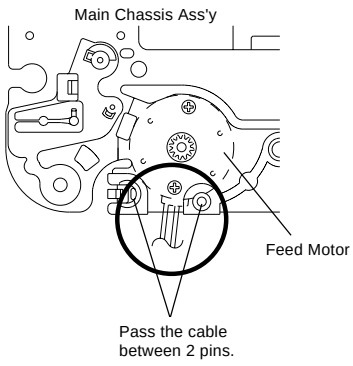



Fig. 3-11-C

# DISASSEMBLY INSTRUCTIONS

## 4. REMOVAL OF ANODE CAP

Read the following **NOTED** items before starting work.

* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

**REMOVAL**

1. Follow the steps as follows to discharge the Anode Cap. **(Refer to Fig. 4-1.)**
   Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground.
   While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver.
   A cracking noise will be heard as the voltage is discharged.

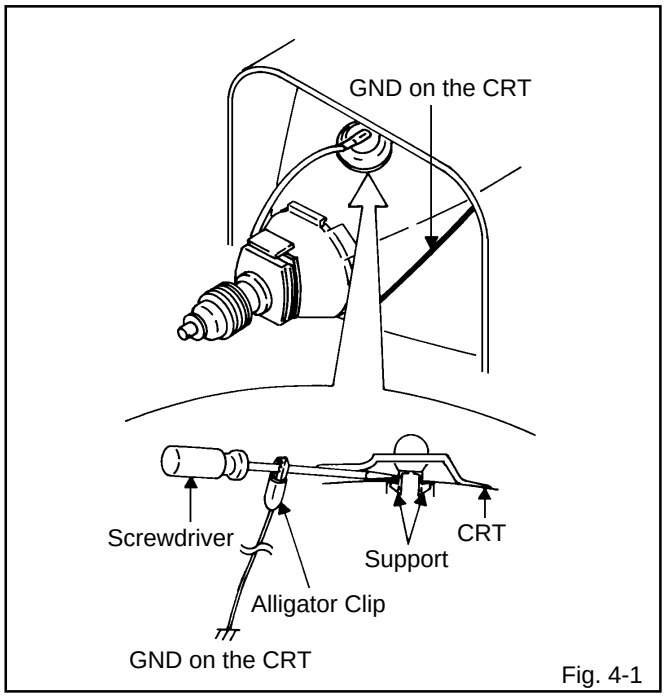


Fig. 4-1

2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. **(Refer to Fig. 4-2.)**

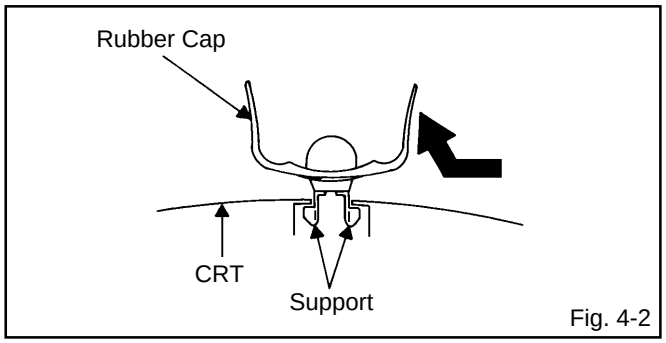


Fig. 4-2

3. After one side is removed, pull in the opposite direction to remove the other.

**NOTE**

Take care not to damage the Rubber Cap.

**INSTALLATION**

1. Clean the spot where the cap was located with a small amount of alcohol. **(Refer to Fig. 4-3.)**

**NOTE**

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

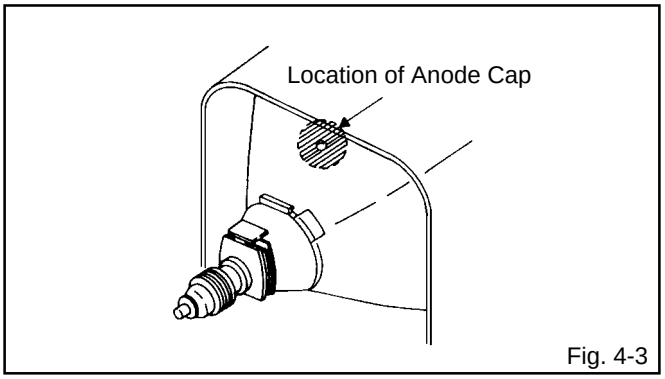


Fig. 4-3

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. **(Refer to Fig. 4-4.)**

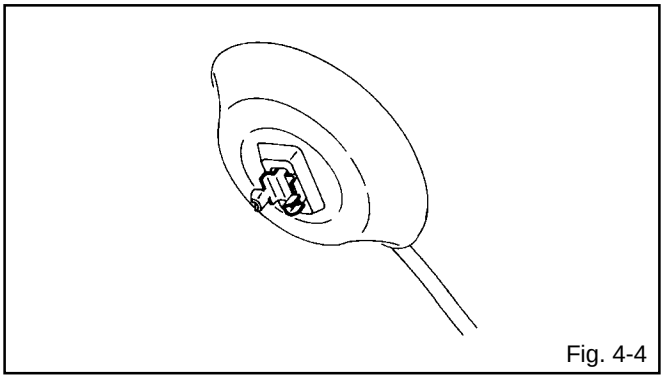


Fig. 4-4

4. Insert one end of the Anode Support into the anode button, then the other as shown in **Fig. 4-5**.

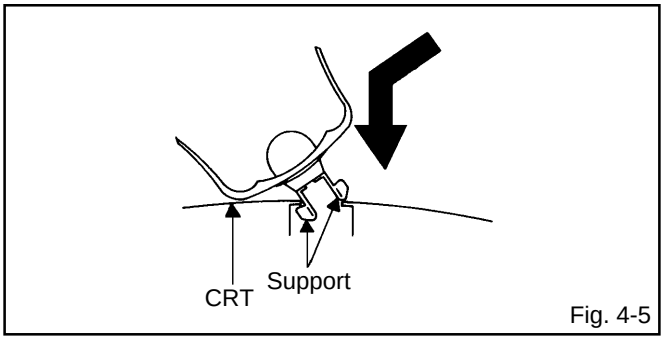


Fig. 4-5

5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

# DISASSEMBLY INSTRUCTIONS

## 5. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

**REMOVAL**

1. Put the Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. **(Refer to Fig. 5-1.)**

   **NOTE**

   Masking is carried out on all the parts located within 10 mm distance from IC leads.

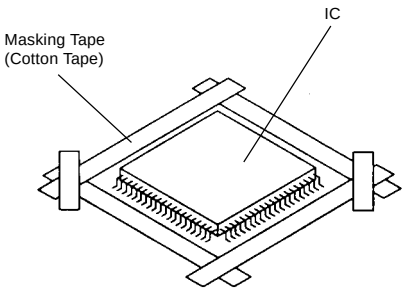



Fig. 5-1

2. Heat the IC leads using a blower type IC desoldering machine. **(Refer to Fig. 5-2.)**

   **NOTE**

   Do not add the rotating and the back and forth directions force on the IC, until IC can move back and forth easily after desoldering the IC leads completely.

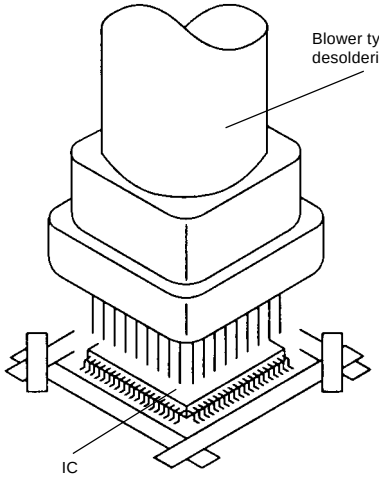



Fig. 5-2

3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. **(Refer to Fig. 5-3.)**

   **NOTE**

   Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

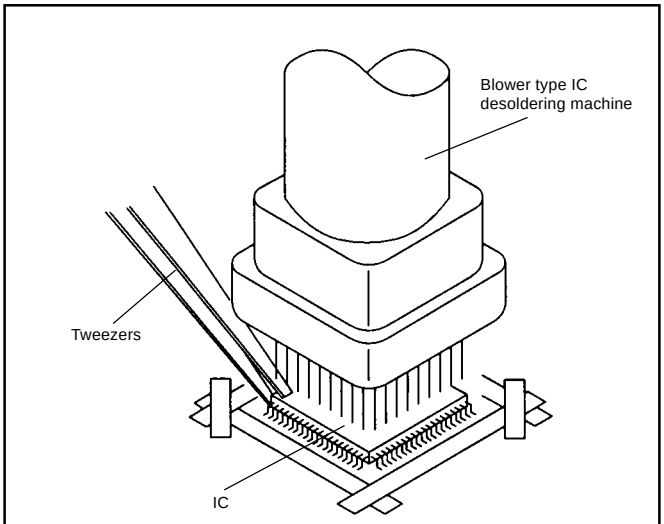



Fig. 5-3

4. Peel off the Masking Tape.
5. Absorb the solder left on the pattern using the Braided Shield Wire. **(Refer to Fig. 5-4.)**

   **NOTE**

   Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

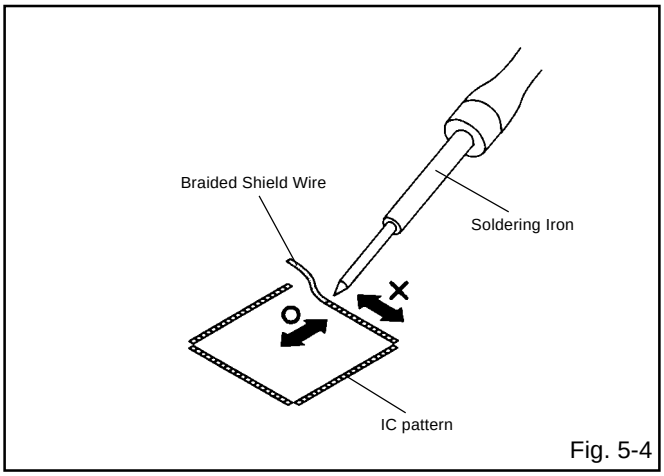



Fig. 5-4

# DISASSEMBLY INSTRUCTIONS

**INSTALLATION**

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. **(Refer to Fig. 5-5.)**

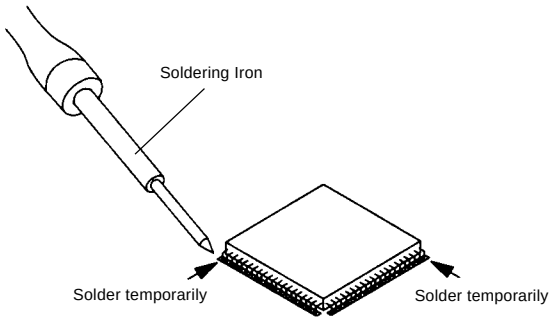



Fig. 5-5

2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. **(Refer to Fig. 5-6.)**

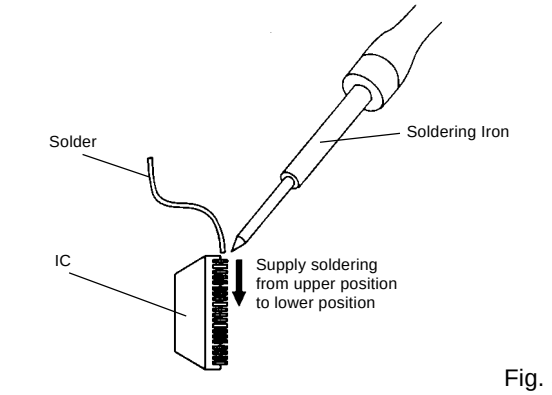



Fig. 5-6

3. Absorb the solder left on the lead using the Braided Shield Wire. **(Refer to Fig. 5-7.)**

   **NOTE**

   Do not absorb the solder to excess.

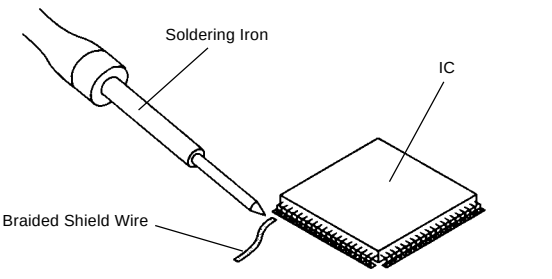



Fig. 5-7

4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. **(Refer to Fig. 5-8.)**

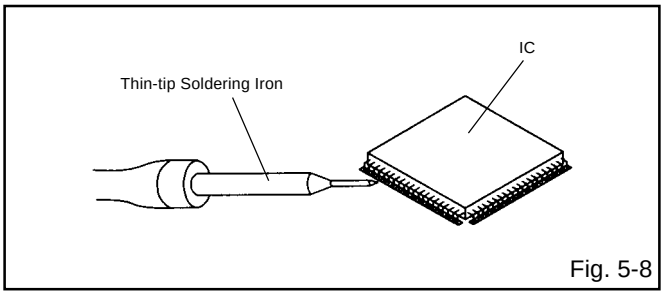



Fig. 5-8

5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass.
   Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

   **NOTE**

   When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

# KEY TO ABBREVIATIONS

| | | | |
|---|---|---|---|
| **A** | **A/C** | : | Audio/Control |
| | **ACC** | : | Automatic Color Control |
| | **AE** | : | Audio Erase |
| | **AFC** | : | Automatic Frequency Control |
| | **AFT** | : | Automatic Fine Tuning |
| | **AFT DET** | : | Automatic Fine Tuning Detect |
| | **AGC** | : | Automatic Gain Control |
| | **AMP** | : | Amplifier |
| | **ANT** | : | Antenna |
| | **A.PB** | : | Audio Playback |
| | **APC** | : | Automatic Phase Control |
| | **ASS'Y** | : | Assembly |
| | **AT** | : | All Time |
| | **AUTO** | : | Automatic |
| | **A/V** | : | Audio/Video |
| **B** | **BGP** | : | Burst Gate Pulse |
| | **BOT** | : | Beginning of Tape |
| | **BPF** | : | Bandpass Filter |
| | **BRAKE SOL** | : | Brake Solenoid |
| | **BUFF** | : | Buffer |
| | **B/W** | : | Black and White |
| **C** | **C** | : | Capacitance, Collector |
| | **CASE** | : | Cassette |
| | **CAP** | : | Capstan |
| | **CARR** | : | Carrier |
| | **CH** | : | Channel |
| | **CLK** | : | Clock |
| | **CLOCK (SY-SE)** | : | Clock (Syscon to Servo) |
| | **COMB** | : | Combination, Comb Filter |
| | **CONV** | : | Converter |
| | **CPM** | : | Capstan Motor |
| | **CTL** | : | Control |
| | **CYL** | : | Cylinder |
| | **CYL-M** | : | Cylinder-Motor |
| | **CYL SENS** | : | Cylinder-Sensor |
| **D** | **DATA (SY-CE)** | : | Data (Syscon to Servo) |
| | **dB** | : | Decibel |
| | **DC** | : | Direct Current |
| | **DD Unit** | : | Direct Drive Motor Unit |
| | **DEMOD** | : | Demodulator |
| | **DET** | : | Detector |
| | **DEV** | : | Deviation |
| **E** | **E** | : | Emitter |
| | **EF** | : | Emitter Follower |
| | **EMPH** | : | Emphasis |
| | **ENC** | : | Encoder |
| | **ENV** | : | Envelope |
| | **EOT** | : | End of Tape |
| | **EQ** | : | Equalizer |
| | **EXT** | : | External |
| **F** | **F** | : | Fuse |
| | **FBC** | : | Feed Back Clamp |
| | **FE** | : | Full Erase |
| | **FF** | : | Fast Forward, Flip-flop |
| | **FG** | : | Frequency Generator |
| | **FL SW** | : | Front Loading Switch |
| | **FM** | : | Frequency Modulation |
| | **FSC** | : | Frequency Sub Carrier |
| | **FWD** | : | Forward |
| **G** | **GEN** | : | Generator |
| | **GND** | : | Ground |
| **H** | **H.P.F** | : | High Pass Filter |
| | **H.SW** | : | Head Switch |
| | **Hz** | : | Hertz |
| **I** | **IC** | : | Integrated Circuit |
| | **IF** | : | Intermediate Frequency |
| | **IND** | : | Indicator |
| | **INV** | : | Inverter |
| **K** | **KIL** | : | Killer |
| **L** | **L** | : | Left |
| | **LED** | : | Light Emitting Diode |
| | **LIMIT AMP** | : | Limiter Amplifier |
| | **LM, LDM** | : | Loading Motor |
| | **LP** | : | Long Play |
| | **L.P.F** | : | Low Pass Filter |
| | **LUMI.** | : | Luminance |
| **M** | **M** | : | Motor |
| | **MAX** | : | Maximum |
| | **MINI** | : | Minimum |
| | **MIX** | : | Mixer, mixing |
| | **MM** | : | Monostable Multivibrator |
| | **MOD** | : | Modulator, Modulation |
| | **MPX** | : | Multiplexer, Multiplex |
| | **MS SW** | : | Mecha State Switch |
| **N** | **NC** | : | Non Connection |
| | **NR** | : | Noise Reduction |
| **O** | **OSC** | : | Oscillator |
| | **OPE** | : | Operation |
| **P** | **PB** | : | Playback |
| | **PB CTL** | : | Playback Control |
| | **PB-C** | : | Playback-Chrominance |
| | **PB-Y** | : | Playback-Luminance |
| | **PCB** | : | Printed Circuit Board |
| | **P. CON** | : | Power Control |
| | **PD** | : | Phase Detector |
| | **PG** | : | Pulse Generator |
| | **P-P** | : | Peak-to Peak |
| **R** | **R** | : | Right |
| | **REC** | : | Recording |
| | **REC-C** | : | Recording-Chrominance |
| | **REC-Y** | : | Recording-Luminance |
| | **REEL BRK** | : | Reel Brake |
| | **REEL S** | : | Reel Sensor |
| | **REF** | : | Reference |
| | **REG** | : | Regulated, Regulator |
| | **REW** | : | Rewind |
| | **REV, RVS** | : | Reverse |
| | **RF** | : | Radio Frequency |
| | **RMC** | : | Remote Control |
| | **RY** | : | Relay |
| **S** | **S. CLK** | : | Serial Clock |
| | **S. COM** | : | Sensor Common |
| | **S. DATA** | : | Serial Data |
| | **SEG** | : | Segment |
| | **SEL** | : | Select, Selector |
| | **SENS** | : | Sensor |
| | **SER** | : | Search Mode |
| | **SI** | : | Serial Input |
| | **SIF** | : | Sound Intermediate Frequency |
| | **SO** | : | Serial Output |
| | **SOL** | : | Solenoid |
| | **SP** | : | Standard Play |

# KEY TO ABBREVIATIONS

| | | | |
|---|---|---|---|
| **S** | **STB** | : | Serial Strobe |
| | **SW** | : | Switch |
| | **SYNC** | : | Synchronization |
| | **SYNC SEP** | : | Sync Separator, Separation |
| **T** | **TR** | : | Transistor |
| | **TRAC** | : | Tracking |
| | **TRICK PB** | : | Trick Playback |
| | **TP** | : | Test Point |
| **U** | **UNREG** | : | Unregulated |
| **V** | **V** | : | Volt |
| | **VCO** | : | Voltage Controlled Oscillator |
| | **VIF** | : | Video Intermediate Frequency |
| | **VP** | : | Vertical Pulse, Voltage Display |
| | **V.PB** | : | Video Playback |
| | **VR** | : | Variable Resistor |
| | **V.REC** | : | Video Recording |
| | **VSF** | : | Visual Search Fast Forward |
| | **VSR** | : | Visual Search Rewind |
| | **VSS** | : | Voltage Super Source |
| | **V-SYNC** | : | Vertical-Synchronization |
| | **VT** | : | Voltage Tuning |
| **X** | **X'TAL** | : | Crystal |
| **Y** | **Y/C** | : | Luminance/Chrominance |

# SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily.
To enter SERVICE MODE, press and hold main unit and remocon key simultaneously.

| Set Key | Remocon Key | Standard Time (seconds) | Operations |
|---|---|---|---|
| VOL. (-) MIN | 0 | 2 | Releasing of V-CHIP PASSWORD. |
| VOL. (-) MIN | 1 | 2 | Initialization of the factory.<br>NOTE: Do not use this for the normal servicing.<br>If you set a factory initialization, the memories are reset such as the clock setting, the channel setting, the POWER ON total hours, and PLAY/REC total hours. |
| VOL. (-) MIN | 2 | 2 | Horizontal position adjustment of OSD.<br>NOTE: Also can be adjusted by using the Adjustment MENU.<br>Refer to the "ELECTRICAL ADJUSTMENT" (OSD HORIZONTAL). |
| VOL. (-) MIN | 3 | 2 | Adjust the PG SHIFTER automatically.<br>Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| VOL. (-) MIN | 4 | 2 | Adjust the PG SHIFTER manually.<br>Refer to the "ELECTRICAL ADJUSTMENT" (PG SHIFTER). |
| VOL. (-) MIN | 5 | 2 | Adjusting of the Tracking to the center position. |
| VOL. (-) MIN | 6 | 2 | POWER ON total hours and PLAY/REC total hours are displayed on the screen.<br>Refer to the "PREVENTIVE CHECKS AND SERVICE INTERVALS" (CONFIRMATION OF HOURS USED).<br><br>Can be checked of the INITIAL DATA of MEMORY IC.<br>Refer to the "WHEN REPLACING EEPROM (MEMORY) IC". |
| VOL. (-) MIN | 9 | 2 | Display of the Adjustment MENU on the screen.<br>Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment). |
| REC/OTR | 4 | 2 | Initialization of the factory on DVD.<br>NOTE: Do not use this for the normal servicing.<br>The function will only work without the setting of DVD disc at DVD mode. |
| STOP (DVD) | 2 | 2 | Releasing of PARENTAL LOCK.<br>Refer to the “PARENTAL CONTROL - RATING LEVEL”.<br>NOTE: The function will only work without the setting of DVD disc at DVD mode. |
| STOP (DVD) | 9 | 3 | Tray cannot be opened.<br>Refer to the “TRAY LOCK”.<br>NOTE: No indications on the screen when the Tray Lock is setting. |

| Set Key | Set Key | Standard Time (seconds) | Operations |
|---|---|---|---|
| VOL. (-) MIN | FF | 2 | The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.<br>Refer to the "PREPARATION FOR SERVICING" |

# PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage.
Parts replacing time does not mean the life span for individual parts.
Also, long term storage or misuse may cause transformation and aging of rubber parts.
The following list means standard hours, so the checking hours depends on the conditions.

| Time / Parts Name | 500 hours | 1,000 hours | 1,500 hours | 2,000 hours | 2,500 hours | Notes |
|---|---|---|---|---|---|---|
| Audio Control Head | ■ | ■ | ■ | ● | ● | Clean those parts in contact with the tape. |
| Full Erase Head (Recorder only) | ■ | ■ | ■ | ● | ● | |
| Capstan Belt | | ● | ● | ● | ● | Clean the rubber, and parts which the rubber touches. |
| Pinch Roller | ■ | ● | ● | ● | ● | |
| Capstan DD Unit | | ● | ● | ● | ● | |
| Loading Motor | | | | | ● | |
| Tension Band | | ● | ● | ● | ● | |
| T Brake Band | | ● | ● | ● | ● | |
| Clutch Ass'y | | ● | ● | ● | ● | |
| Idler Arm Ass'y | | ● | ● | ● | ● | |
| Capstan Shaft | ■ | ■ | ■ | ■ | ■ | |
| Tape Running Guide Post | ■ | ■ | ■ | ■ | ■ | Replace when rolling becomes abnormal. |
| Cylinder Unit | ■ | ● | ● | ● | ● | Clean the Head |

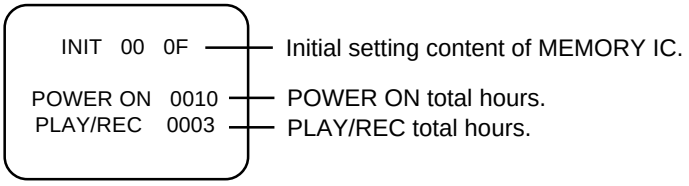
■ : Clean
● : Check it and if necessary, replace it.

## CONFIRMATION OF HOURS USED

POWER ON total hours and PLAY/REC total hours can be checked on the screen.
Total hours are displayed in 16 system of notation.

**NOTE: If you set a factory initialization, the total hours is reset to "0".**

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds.
3. After the confirmation of using hours, turn off the power.




(16 x 16 x 16 x thousands digit value) + (16 x 16 x hundreds digit value) + (16 x tens digit value) + (ones digit value)

# PREVENTIVE CHECKS AND SERVICE INTERVALS

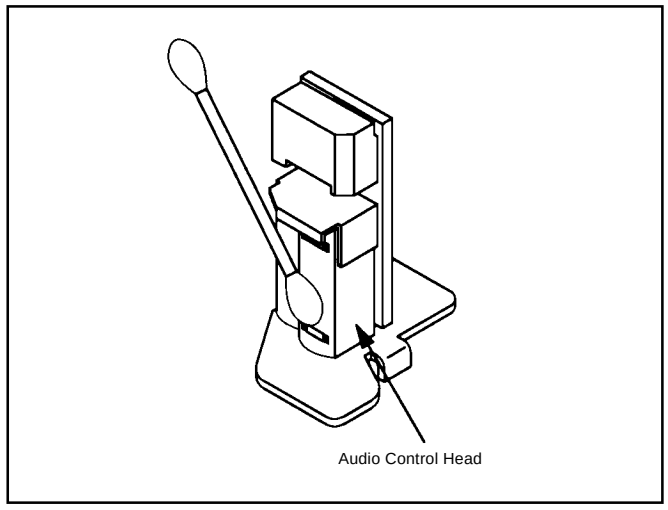
## CLEANING

**NOTE**

After cleaning the heads with isopropyl alcohol, do not run a tape until the heads dry completely. If the heads are not completely dry and alcohol gets on the tape, damage may occur.

**1. AUDIO CONTROL HEAD**

Clean the Audio Control Head with the cotton stick soaked by alcohol. Clean the full erase head in the same manner. **(Refer to the figure below.)**




**2. TAPE RUNNING SYSTEM**

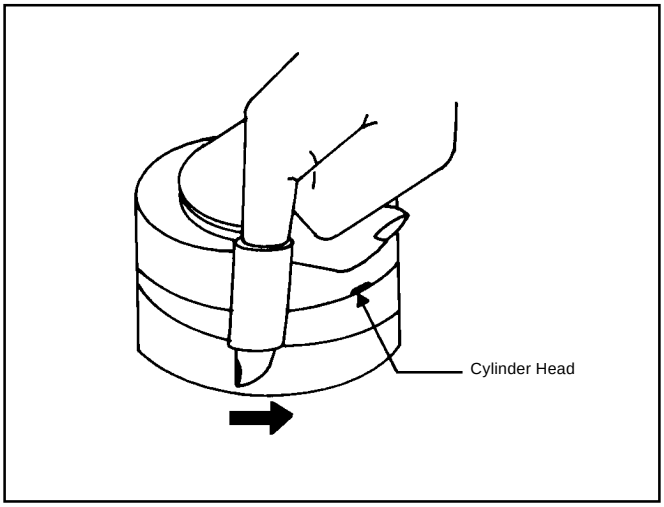
When cleaning the tape transport system, use the gauze moistened with isopropyl alcohol.

**3. CYLINDER**

Wrap a piece of chamois around your finger. Dip it in isopropyl alcohol. Hold it to the cylinder head softly. Turn the cylinder head counterclockwise to clean it (in the direction of the arrow). **(Refer to the figure below.)**

**NOTE**

Do not exert force against the cylinder head. Do not move the chamois upward or downward on the head.
Use the chamois one by one.



# WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

**NOTE: No need setting for after INI 44 due to the adjustment value.**

| INI | +0 | +1 | +2 | +3 | +4 | +5 | +6 | +7 | +8 | +9 | +A | +B | +C | +D | +E | +F |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 00 | 0F | 47 | 52 | 02 | 04 | 9D | 20 | 22 | 86 | 45 | D0 | 08 | A6 | A1 | 42 | 45 |
| 10 | 20 | 30 | E3 | 52 | 03 | 87 | 00 | 48 | 00 | F6 | 15 | 4B | 16 | 54 | 83 | B2 |
| 20 | 9A | 97 | 8C | A5 | B7 | 88 | 91 | B6 | 1A | 0B | 3D | 04 | 37 | 16 | 27 | 30 |
| 30 | 05 | 31 | 18 | 40 | 00 | EF | 0D | 3F | 00 | 23 | FF | FF | FF | 80 | 88 | 83 |
| 40 | 88 | 89 | 88 | 00 | 00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

**Table 1**

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the Channel button **(6)** on the remote control for more than 2 seconds. ADDRESS and DATA should appear as FIG 1.

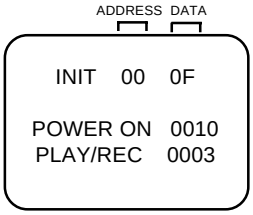



**Fig. 1**

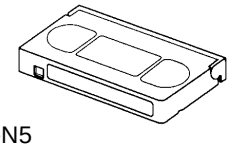
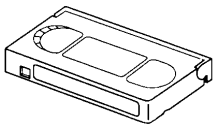
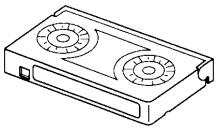
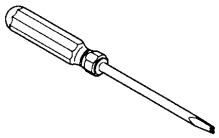
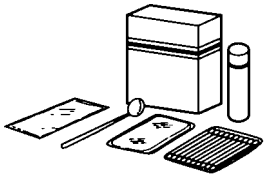
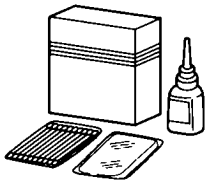
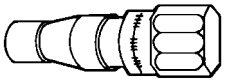
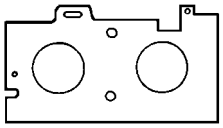
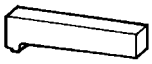
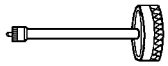
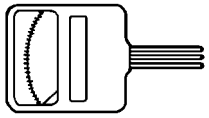
3. ADDRESS is now selected and should "blink". Using the UP or DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using UP or DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.

**After the data input, set to the initializing of shipping.**

9. Turn POWER on.
10. Press both VOL. DOWN button on the set and the Channel button **(1)** on the remote control for more than 2 seconds.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

# SERVICING FIXTURES AND TOOLS

| | | | |
|---|---|---|---|
| Alignment Tape<br>  <br>ST-N5<br>ST-NF | Back tension cassette gauge<br>  <br>70909103 | Torque cassette gauge (KT-300NR)<br>  <br>70909199 | Taper nut driver<br>  <br>70909228 |
| VTR cleaning kit<br>  | VTR lubrication kit<br>  | Grease<br> | JG002B Adapter<br>JG002E Dial Torque Gauge (10~90gf•cm)<br>JG002F (60~600gf•cm)<br>  |
| JG022 Master Plane<br>  | JG024A Reel Disk Height Adjustment Jig<br>  | JG153 X Value Adjustment Screwdriver<br>  | JG185 Tentelometer<br>  |

| Ref. No. | Part No. | Parts Name | Remarks |
|---|---|---|---|
| JG002B | APJG002B00 | Adapter | VSR Torque, Brake Torque (S Reel/T Reel Ass'y) |
| JG002E | APJG002E00 | Dial Torque Gauge (10~90gf•cm) | Brake Torque (T Reel Ass'y) |
| JG002F | APJG002F00 | Dial Torque Gauge (60~600gf•cm) | VSR Torque, Brake Torque (S Reel) |
| JG022 | APJG022000 | Master Plane | Reel Disk Height Adjustment |
| JG024A | APJG024A00 | Reel Disk Height Adjustment Jig | Reel Disk Height Adjustment |
| JG153 | APJG153000 | X Value Adjustment Screwdriver | X Value Adjustment |
| JG185 | APJG185000 | Tentelometer | Confirmation of Tape Tension on Playback |

# PREPARATION FOR SERVICING

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and the FF button on the set for more than 2 seconds.
   (The BOT, EOT, and the Reel Sensor do not work and the VCR deck can be operated without a cassette tape.)
3. In case of using a cassette tape, press the STOP/EJECT button to insert or eject a cassette tape.
   Turn on the power and re-check the cable before checking the trouble points.

# MECHANICAL ADJUSTMENTS

## 1. CONFIRMATION AND ADJUSTMENT

Read the following NOTES before starting work.

- Place an object which weighs between 450g~500g on the Cassette Tape to keep it steady when you want to make the tape run without the Cassette Holder. (Do not place an object which weighs over 500g.)

### 1-1: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

1. Turn on the power and set to the STOP mode.
2. Set the master plane **(JG022)** and reel disk height adjustment jig **(JG024A)** on the mechanism framework, taking care not to scratch the drum, as shown in **Fig. 1-1-A**.
3. While turning the reel and confirm the following points. Check if the surface "A" of reel disk is lower than the surface "B" of reel disk height adjustment jig **(JG024A)** and is higher than the surface "C". If it is not passed, place the height adjustment washers and adjust to 10(+2, -0)mm.
4. Adjust the other reel in the same way.

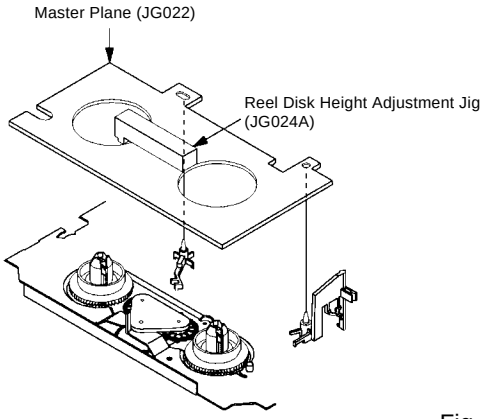


Fig. 1-1-A

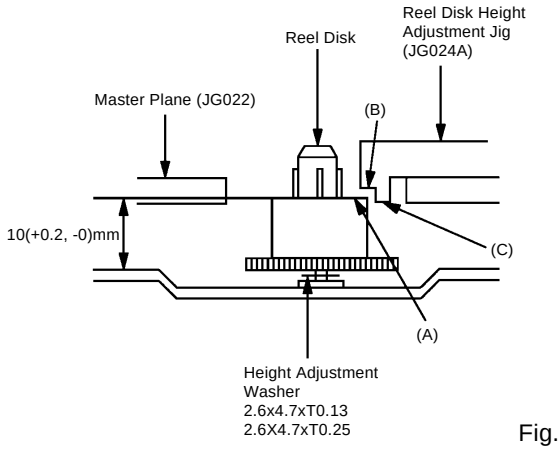


Fig. 1-1-B

### 1-2: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

1. Set to the PLAY mode.
2. Adjust the adjusting section for the Tension Arm position so that the Tension Arm top is within the standard line of Main Chassis.
3. While turning the S Reel clockwise, confirm that the edge of the Tension Arm is located in the position described above.

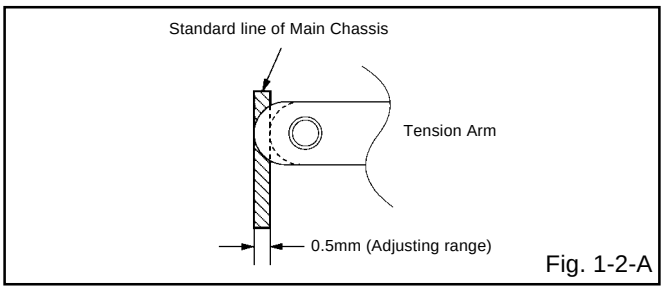


Fig. 1-2-A

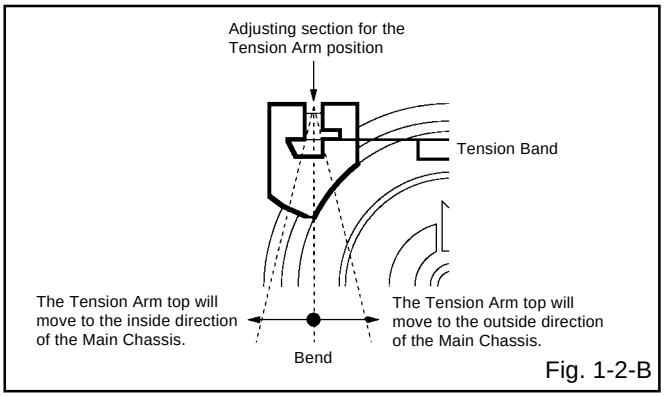


Fig. 1-2-B

### 1-3: CONFIRMATION OF PLAYBACK TORQUE AND BACK TENSION TORQUE DURING PLAYBACK

1. Load a video tape (T-120) recorded in standard speed mode. Set the unit to the PLAY mode.
2. Install the tentelometer (JG185) as shown in **Fig. 1-3**. Confirm that the meter indicates 20 ± 2gf in the beginning of playback.

• USING A CASSETTE TYPE TORQUE TAPE **(KT-300NR)**

1. After confirmation and adjustment of Tension Post position **(Refer to item 1-2)**, load the cassette type torque tape **(KT-300NR)** and set to the PLAY mode.
2. Confirm that the right meter of the torque tape indicates 50~90gf•cm during playback in SP mode.
3. Confirm that the left meter of the torque tape indicates 25~40gf•cm during playback in SP mode.

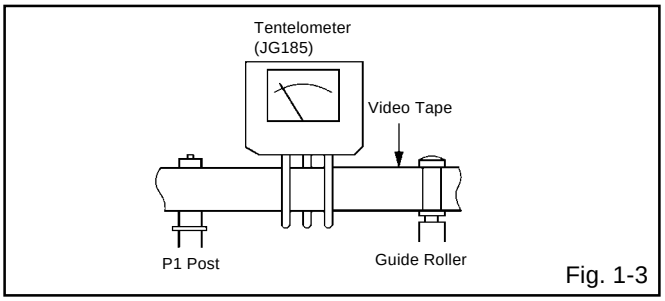


Fig. 1-3

# MECHANICAL ADJUSTMENTS

### 1-4: CONFIRMATION OF VSR TORQUE

1. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Set to the Picture Search (Rewind) mode. **(Refer to Fig.1-4-B)**
2. Then, confirm that it indicates 120~180gf•cm.

**NOTE**

Install the Torque Gauge on the reel disk firmly. Press the REW button to turn the reel disk.

### 1-5: CONFIRMATION OF REEL BRAKE TORQUE

(S Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the S Reel.
3. Install the Torque Gauge **(JG002F)** and Adapter **(JG002B)** on the S Reel. Turn the Torque Gauge **(JG002F)** clockwise.
4. Then, confirm that it indicates 60~100gf•cm.

(T Reel Brake) **(Refer to Fig. 1-4-B)**

1. Once set to the Fast Forward mode then set to the Stop mode. While, unplug the AC cord when the Pinch Roller Block is on the position of **Fig. 1-4-A**.
2. Move the Idler Ass'y from the T Reel.
3. Install the Torque Gauge **(JG002E)** and Adapter **(JG002B)** on the T reel. Turn the Torque Gauge **(JG002E)** counterclockwise.
4. Then, confirm that it indicates 30~50gf•cm.

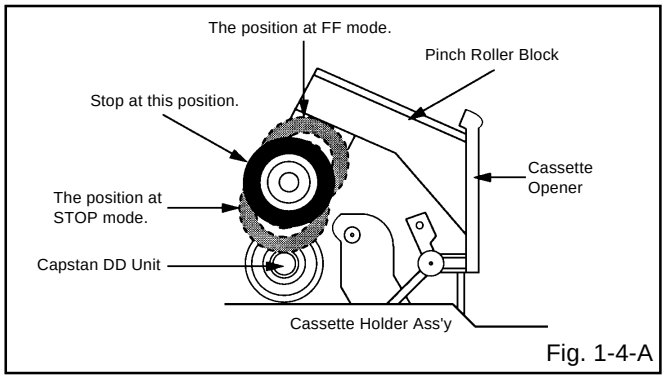


Fig. 1-4-A

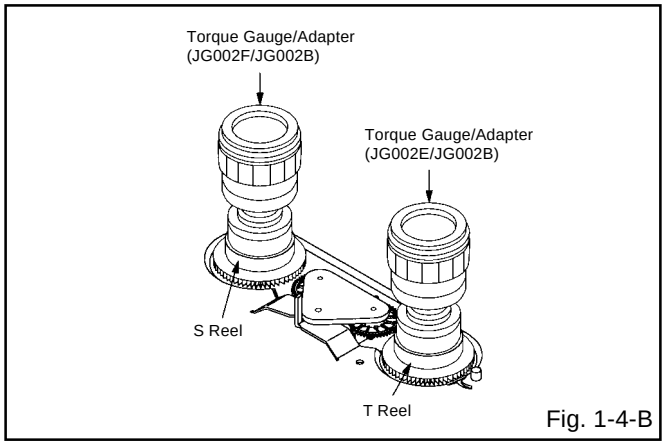


Fig. 1-4-B

**NOTE**

If the torque is out of the range, replace the following parts.

| Check item | Replacement Part |
|---|---|
| 1-4 | Idler Ass'y/Clutch Ass'y |
| 1-5 | S Reel side: S Reel/Tension Band/Tension Connect/Tension Arm Ass'y<br>T Reel side: T Reel/T Brake Band//T Brake Spring/T Brake Arm |

## 2. CONFIRMATION AND ADJUSTMENT OF TAPE RUNNING MECHANISM

Tape Running Mechanism is adjusted precisely at the factory. Adjustment is not necessary as usual. When you replace the parts of the tape running mechanism because of long term usage or failure, the confirmation and adjustment are necessary.

### 2-1: GUIDE ROLLER

1. Playback the VHS Alignment Tape.
2. Connect CH-1 of the oscilloscope to **TP4501 (Envelope)** and CH-2 to **TP102 (SW Pulse)**.
3. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
4. Trigger with SW Pulse and observe the envelope. **(Refer to Fig. 2-1-A)**
5. When observing the envelope, adjust the Taper Nut Driver slightly until the envelope will be flat.
   Even if you press the Tracking Button, adjust so that flatness is not moved so much.
6. Adjust so that the A : B ratio is better than 3 : 2 as shown in **Fig. 2-1-B**, even if you press the Tracking Button to move the envelope (The envelope waveform will begin to decrease when you press the Tracking Button).
7. Adjust the PG shifter during playback.
   **(Refer to the ELECTRICAL ADJUSTMENTS)**

**NOTE**

After adjustment, confirm and adjust A/C head.
**(Refer to item 2-2)**

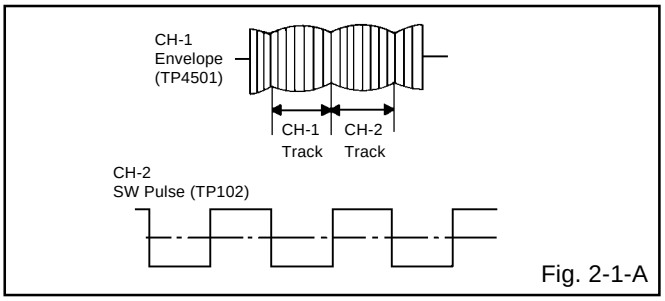


Fig. 2-1-A

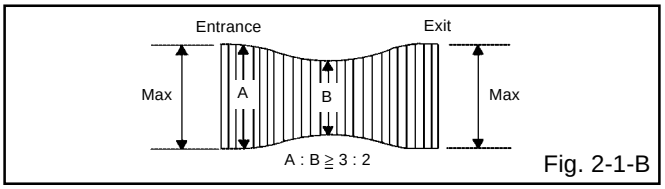


Fig. 2-1-B

# MECHANICAL ADJUSTMENTS

### 2-2: CONFIRMATION AND ADJUSTMENT OF AUDIO/ CONTROL HEAD

When the Tape Running Mechanism does not work well, adjust the following items.

1. Playback the VHS Alignment Tape.
2. Confirm that the reflected picture of stamp mark is appeared on the tape prior to P4 Cap as shown in **Fig. 2-2-A**.
   a) When the reflected picture is distorted, turn the screw ① clockwise until the distortion is disappeared.
   b) When the reflected picture is not distorted, turn the screw ① counterclockwise until little distortion is appeared, then adjust the a).
3. Turn the screw ② to set the audio level to maximum.
4. Confirm that the bottom of the Audio/ Control Head and the bottom of the tape is shown in **Fig. 2-2-C**.
   c) When the height is not correct, turn the screw ③ to adjust the height. Then, adjust the 1~3 again.

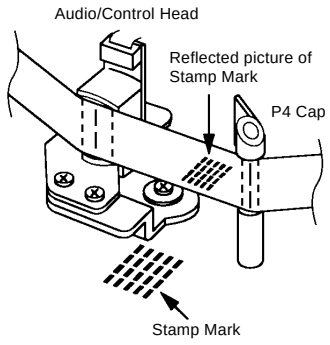


Fig. 2-2-A

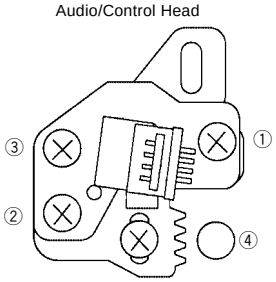


Fig. 2-2-B

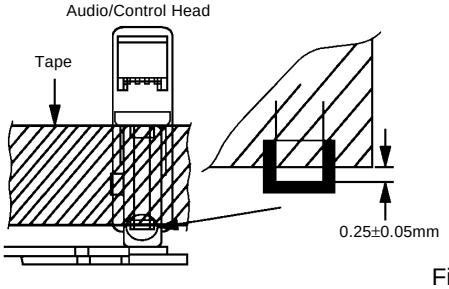


Fig. 2-2-C

### 2-3: TAPE RUNNING ADJUSTMENT (X VALUE ADJUSTMENT)

1. Confirm and adjust the height of the Reel Disk. **(Refer to item 1-1)**
2. Confirm and adjust the position of the Tension Post. **(Refer to item 1-2)**
3. Adjust the Guide Roller. **(Refer to item 2-1)**
4. Confirm and adjust the Audio/Control Head. **(Refer to item 2-2)**
5. Connect CH-1 of the oscilloscope to **TP102**, CH-2 to **TP4501** and CH-3 to **HOT side of Audio Out Jack**.
6. Playback the VHS Alignment Tape.
7. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
8. Set the X Value adjustment driver **(JG153)** to the ④ of **Fig. 2-2-B**. Adjust X value so that the envelope waveform output becomes maximum. Check if the relation between Audio and Envelope waveform becomes (1) or (2) of **Fig. 2-3**.

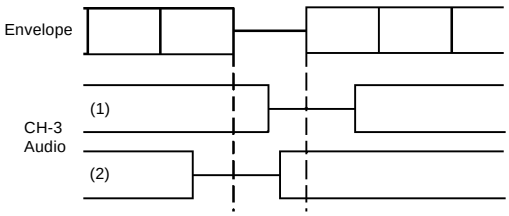
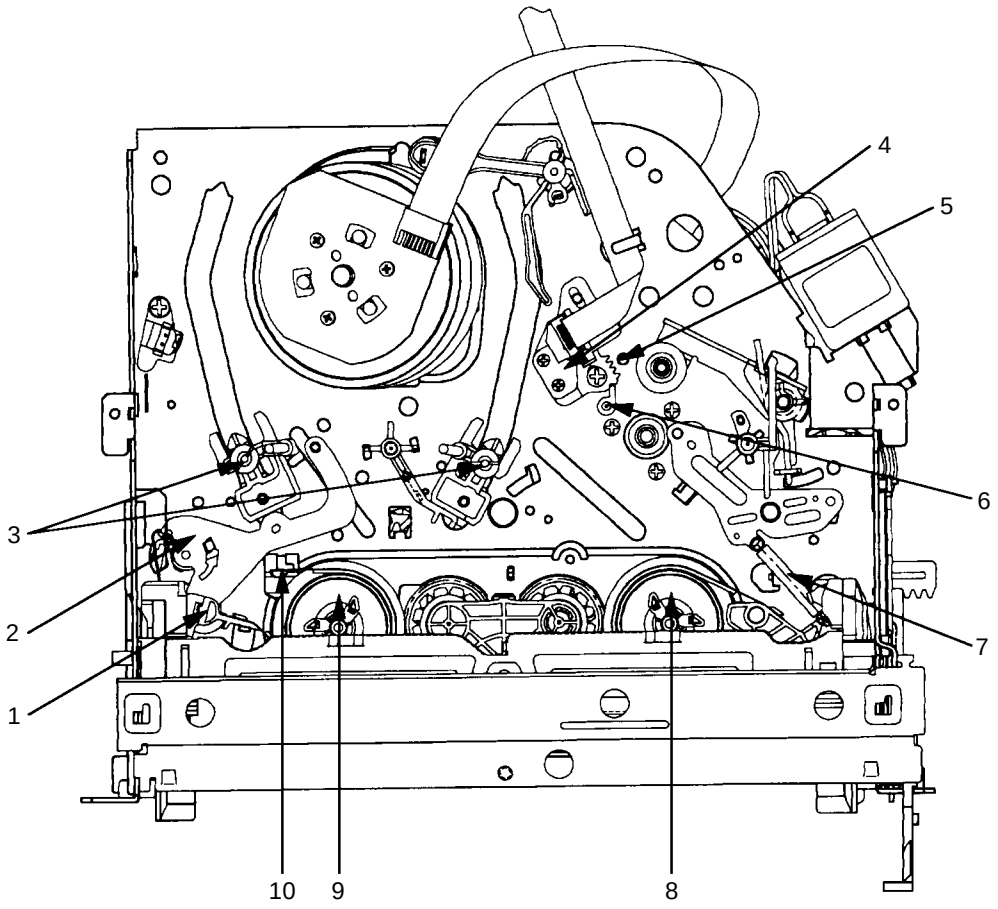


Fig. 2-3

# MECHANICAL ADJUSTMENTS

## 3. MECHANISM ADJUSTMENT PARTS LOCATION GUIDE




1. Tension Connect
2. Tension Arm
3. Guide Roller
4. Audio/Control Head
5. X value adjustment driver hole
6. P4 Post
7. T Brake Spring
8. T Reel
9. S Reel
10. Adjusting section for the Tension Arm position

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE MAKING ELECTRICAL ADJUSTMENTS

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

**CAUTION**

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor for a heat sink, apply the silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor).

**Prepare the following measurement tools for electrical adjustments.**

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

**On-Screen Display Adjustment**

1. Set the VOLUME to minimum.
2. Press the VOL. DOWN button on the set and the Channel button **(9)** on the remote control for more than 2 seconds to appear the adjustment mode on the screen as shown in **Fig. 1-1**.

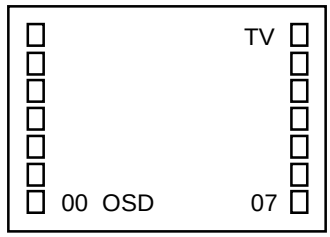



Fig. 1-1

3. Use the Channel UP/DOWN button or Channel button **(0-9)** on the remote control to select the options shown in **Fig. 1-2**.
4. Press the MENU button on the remote control to end the adjustments.

| NO. | FUNCTION | NO. | FUNCTION |
|---|---|---|---|
| 00 | OSD H | 18 | BRI MAX |
| 01 | OSD C | 19 | BRI MIN |
| 02 | CUT OFF | 20 | CONT CENT |
| 03 | H.POSI | 21 | CONT MAX |
| 04 | H.BLK L | 22 | CONT MIN |
| 05 | H.BLK R | 23 | COL CENT |
| 06 | V.SIZE | 24 | COL MAX |
| 07 | V.POSI | 25 | COL MIN |
| 08 | V.LIN | 26 | TINT |
| 09 | VS.CORR | 27 | SHARP |
| 10 | V.COMP | 28 | SUB BIAS |
| 11 | R.BIAS | 29 | H.SIZE |
| 12 | G.BIAS | 30 | PARABOLA |
| 13 | B.BIAS | 31 | TRAPEZIUM |
| 14 | R.DRV | 32 | COR TOP |
| 15 | G.DRV | 33 | COR BTM |
| 16 | B.DRV | 34 | H.COMP |
| 17 | BRI CENT | 35 | T.STE |

Fig. 1-2

## 2. BASIC ADJUSTMENTS (VCR SECTION)

**2-1: PG SHIFTER**

1. Connect CH-1 on the oscilloscope to **TP102** and CH-2 to **TP4201**.
2. Playback the alignment tape.
3. Press both VOL. DOWN button on the set and the Channel button **(5)** on the remote control for more than 2 seconds to set tracking to center.
4. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control for more than 2 seconds until the indicator REC disappears. If the indicator REC disappears, adjustment is completed.

**(If the above adjustments doesn't work well:)**

5. Press the VOL. DOWN button on the set and the channel button **(3)** on the remote control for more than 2 seconds until the indicator REC disappears.
6. When the REC indicator is blinking, press both VOL. DOWN button on the set and the channel button **(4)** on the remote control for more than 2 seconds and adjust the Tracking +/- button until the arising to the down of Head Switching Pulse becomes 6.5 ± 0.5H. **(Refer to Fig. 2-1-A, B)**

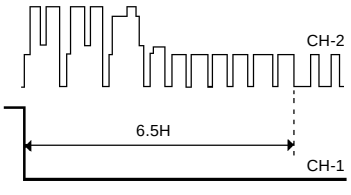



Fig. 2-1-A

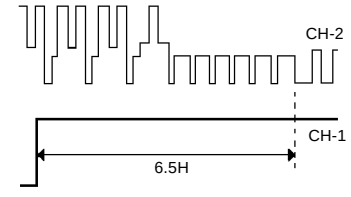



Fig. 2-1-B

# ELECTRICAL ADJUSTMENTS

## (TV SECTION)

### 2-2: CONSTANT VOLTAGE

1. Set condition is AV MODE without signal.
2. Using the remote control, set the brightness and contrast to normal position.
3. Connect the digital voltmeter to **TP401**.
4. Adjust the **VR1701** until the digital voltmeter is 135.5 ± 0.5V.

### 2-3: CUT OFF

1. Adjust the unit to the following settings.
   R.BIAS=127, G.BIAS=127, B.BIAS=127, R.DRV=63, G.DRV=07, B.DRV=63,
2. Place the set with Aging Test for more than 15 minutes.
3. Set condition is AV MODE without signal.
4. Using the remote control, set the brightness and contrast to normal position.
5. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(02)** on the remote control to select "CUT OFF".
6. Adjust the **Screen Volume** until a dim raster is obtained.

### 2-4: WHITE BALANCE

**NOTE:** Adjust after performing CUT OFF adjustment.

1. Place the set with Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(11)** on the remote control to select "R.BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R.BIAS", "G.BIAS", "B.BIAS", "R.DRV", "B.DRV" or "G.DRV".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R.BIAS, G.BIAS, B.BIAS, R.DRV, B.DRV, and G.DRV at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is looked like a white.

### 2-5: FOCUS

1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

### 2-6: HORIZONTAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "H.POSI".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

### 2-7: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(29)** on the remote control to select “H. SIZE”.
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes 10 ± 2%.

### 2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(07)** on the remote control to select "V.POSI".
4. Check if the step No. V.POSI is "02".
5. Adjust the **VR404** until the horizontal line becomes fit to the notch of the shadow mask.

### 2-9: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "V.SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the Up/Down OVER SCAN Quantity becomes equal to the Right/Left OVER SCAN Quantity.

### 2-10: VERTICAL LINEARITY

**NOTE:** Adjust after performing adjustments in section 2-9. After the adjustment of Vertical Linearity, reconfirm the Vertical Position and Vertical Size adjustments.

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(08)** on the remote control to select "V.LIN".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

### 2-11: TRAPEZIUM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select “TRAPEZIUM”.
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

# ELECTRICAL ADJUSTMENTS

### 2-12: PARABOLA

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select “PARABOLA”.
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

### 2-13: CORNER CORR TOP

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select “COR TOP”.
4. Press the VOL. UP/DOWN button on the remote control until the upper section of the both ends vertical lines are straight.

### 2-14: CORNER CORR BOTTOM

1. Receive the crosshatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select “COR BTM”.
4. Press the VOL. UP/DOWN button on the remote control until the bottom section of the both ends vertical lines are straight.

### 2-15: OSD HORIZONTAL

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. **(Refer to Fig. 2-2)**

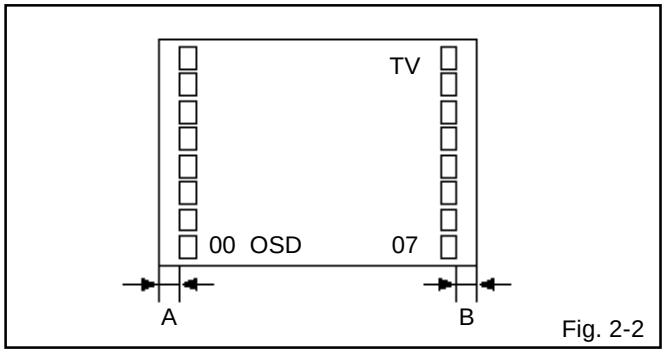


Fig. 2-2

### 2-16: BRIGHT CENTER

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
4. Press the VOL. UP/DOWN button on the remote control until the white 15% is starting to be visible
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the DVD button on the remote control to set to the DVD mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(17)** on the remote control to select "BRI CENT".
9. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

### 2-17: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP806**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TNT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes a straight line **(Refer to Fig. 2-3)**.
6. Receive the color bar pattern. (Audio Video Input)
7. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~5.
8. Press the DVD button on the remote control to set to the DVD mode.
9. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(26)** on the remote control to select "TNT".
10. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

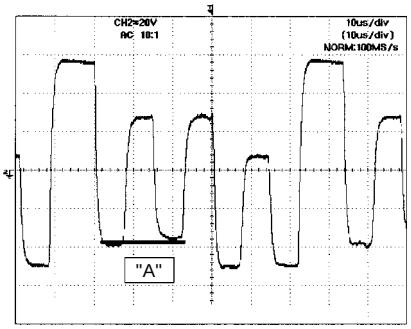


Fig. 2-3

# ELECTRICAL ADJUSTMENTS

### 2-18: COLOR CENTER

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP804**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to 110 ± 5% of the white level. **(Refer to Fig. 2-4)**
7. Receive the color bar pattern. (Audio Video Input)
8. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 2~6.
9. Press the DVD button on the remote control to set to the DVD mode.
10. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(23)** on the remote control to select "COL CENT".
11. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

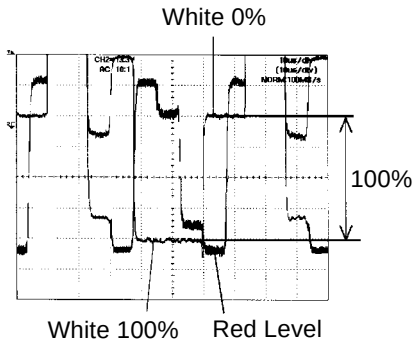


Fig. 2-4

### 2-19: SUB CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to select "CONT MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "106".
3. Receive a broadcast and check if the picture is normal.
4. Press the INPUT SELECT button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Receive a broadcast and check if the picture is normal. Press the DVD button on the remote control to set to the DVD mode.
6. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(21)** on the remote control to
7. select "CONT MAX".
8. Press the VOL. UP/DOWN button on the remote control to set the same step numbers as the AV mode.

### 2-20: Confirmation of Fixed Value (step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

| NO. | FUNCTION | RF | AV | DVD |
|---|---|---|---|---|
| 01 | OSD C | 03 | 03 | 03 |
| 04 | H.BLK L | 04 | 04 | 04 |
| 05 | H.BLK R | 03 | 03 | 03 |
| 09 | VS.CORR | 18 | 18 | 18 |
| 10 | V.COMP | 03 | 03 | 03 |
| 18 | BRI MAX | 50 | 50 | 50 |
| 19 | BRI MIN | 05 | 05 | 05 |
| 20 | CONT CENT | 70 | 70 | 70 |
| 22 | CONT MIN | 15 | 15 | 15 |
| 24 | COL MAX | 127 | 127 | 127 |
| 25 | COL MIN | 00 | 00 | 00 |
| 27 | SHARP | 25 | 25 | 25 |
| 28 | SUB BIAS | 00 | 00 | 00 |
| 34 | H.COMP | 02 | 02 | 02 |
| 35 | T.STE | 00 | 00 | 00 |

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

**NOTE**

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**
   If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

**NOTE**

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.
   Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue colors.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

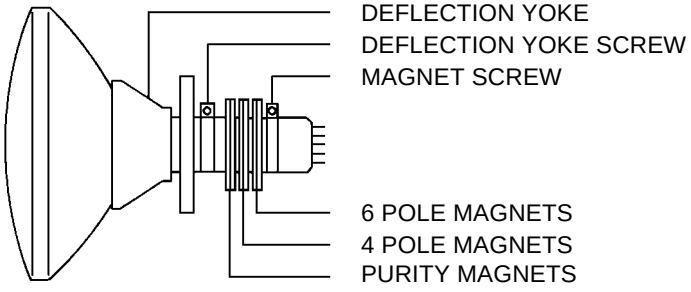



**Fig. 3-1**

### 3-3: STATIC CONVERGENCE

**NOTE**

Adjust after performing adjustments in section 3-2.

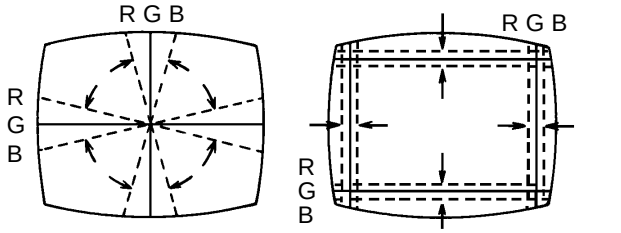
1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

**NOTE**

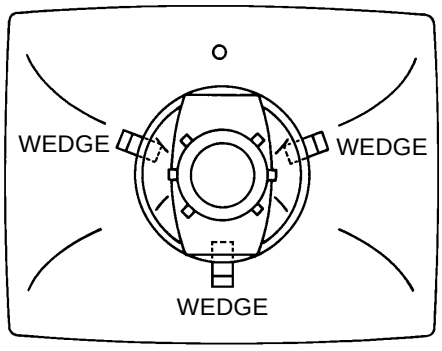
Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**




UPWARD/DOWNWARD SLANT RIGHT/LEFT SLANT

**Fig. 3-2-a**

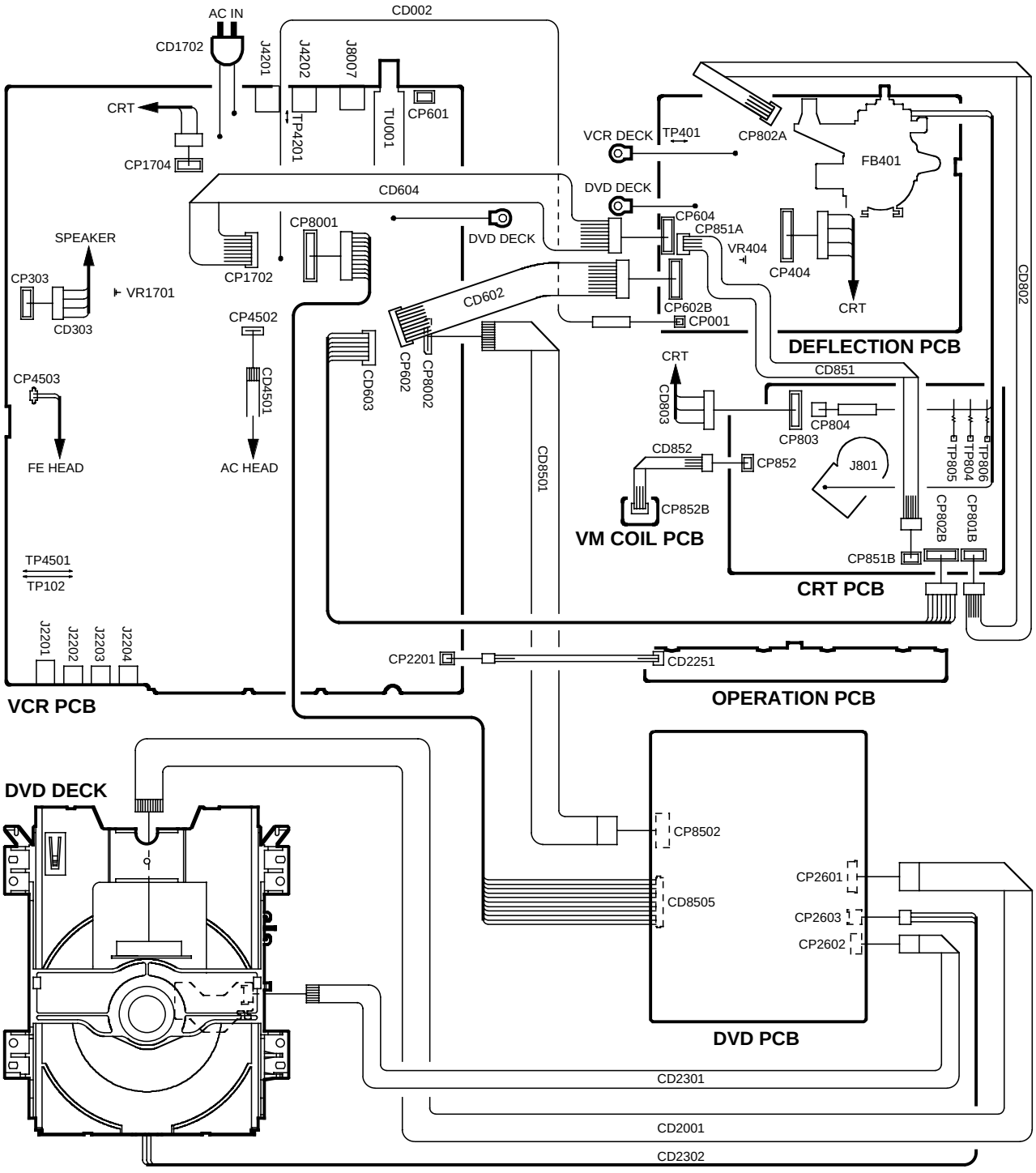



WEDGE POSITION

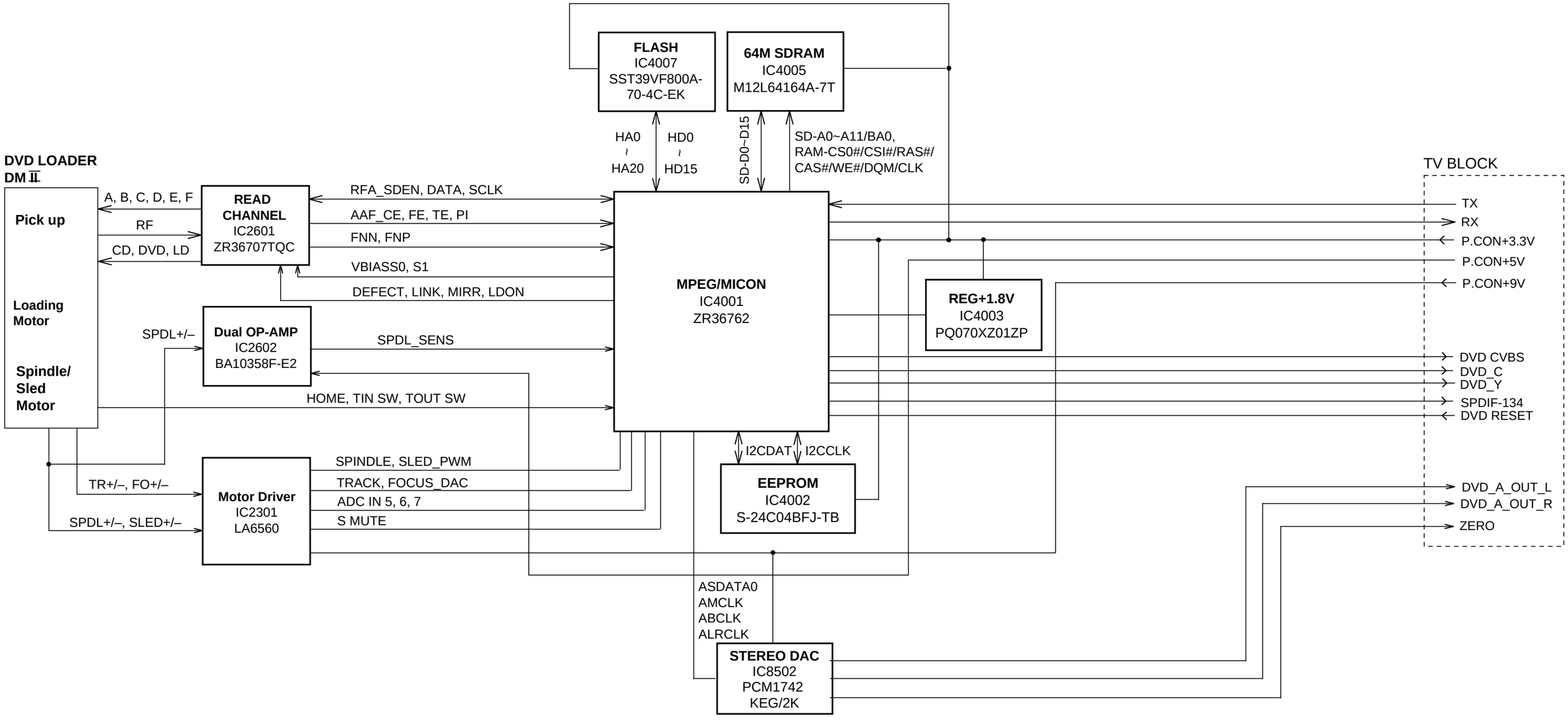
**Fig. 3-2-b**

# ELECTRICAL ADJUSTMENTS

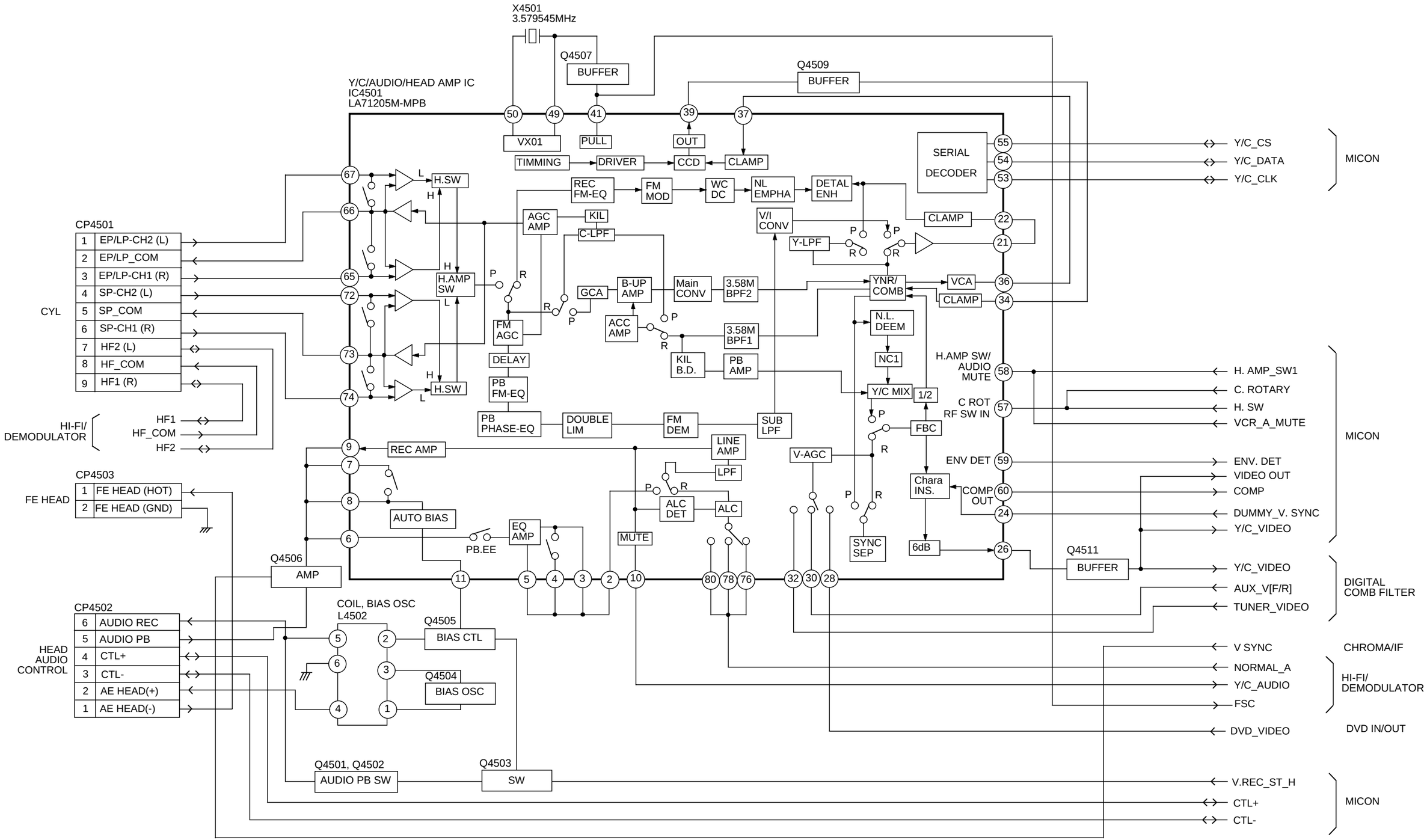
## 2. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)



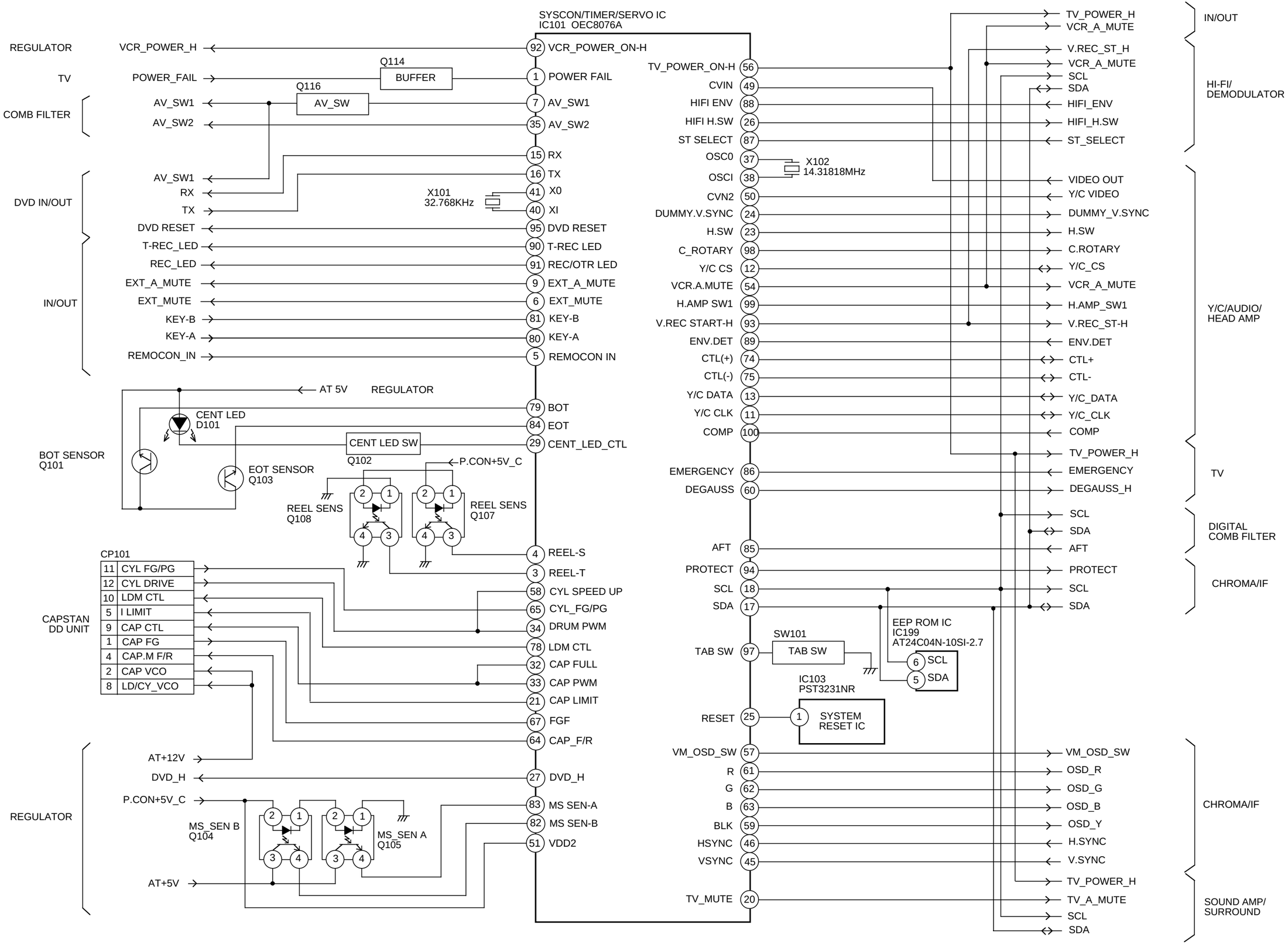
# DVD BLOCK DIAGRAM



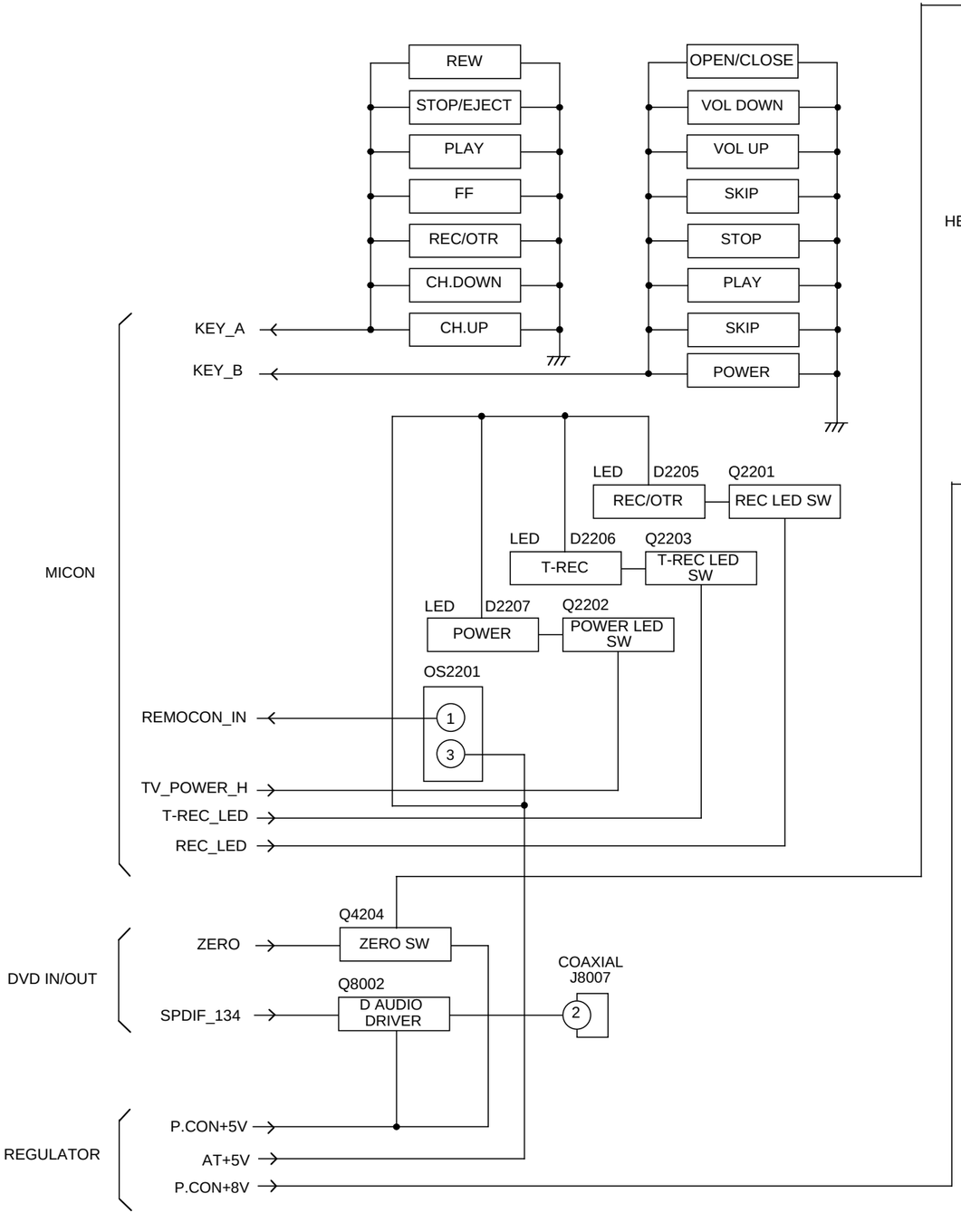
# Y/C/AUDIO/HEAD AMP BLOCK DIAGRAM

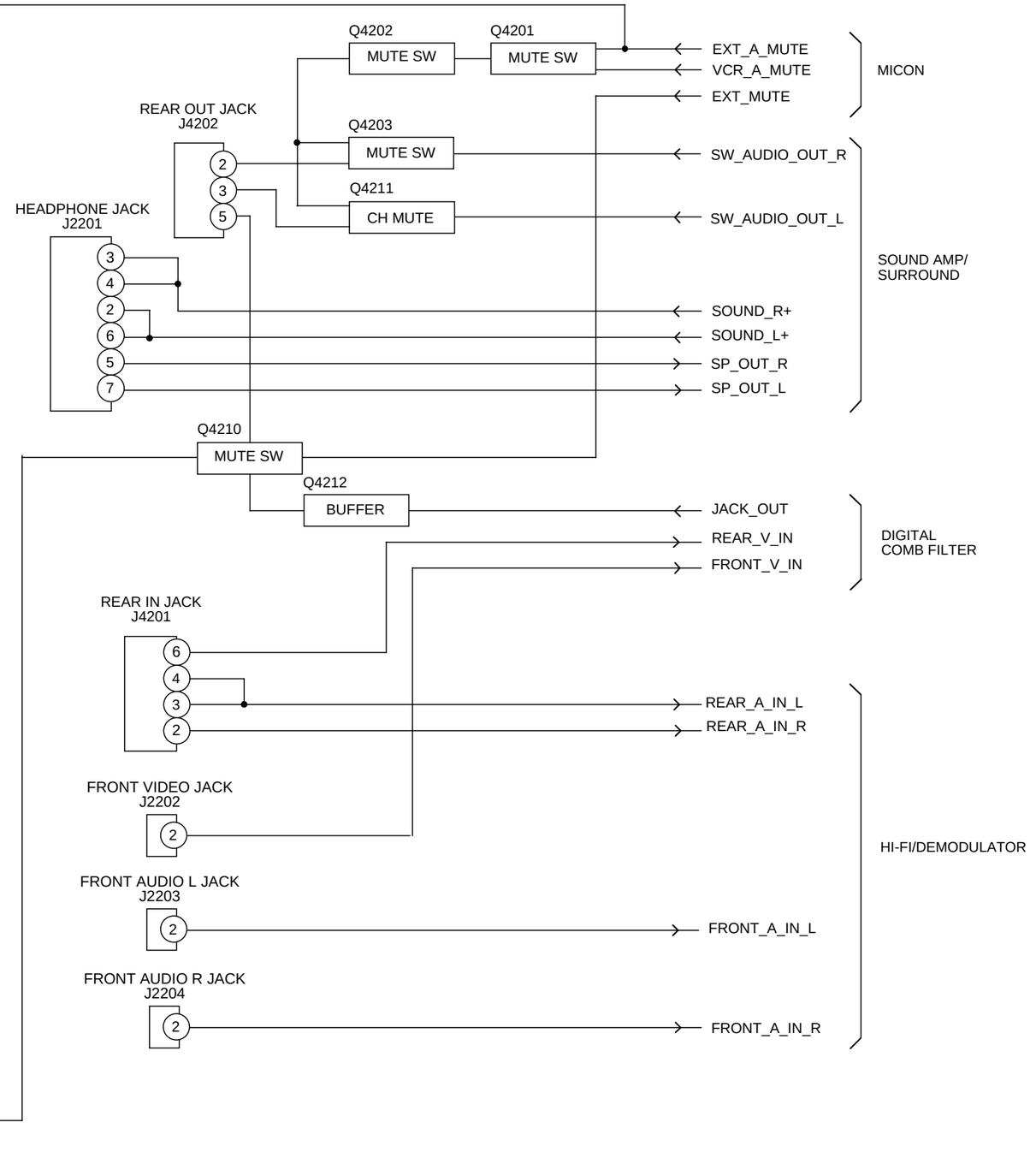


# MICON BLOCK DIAGRAM

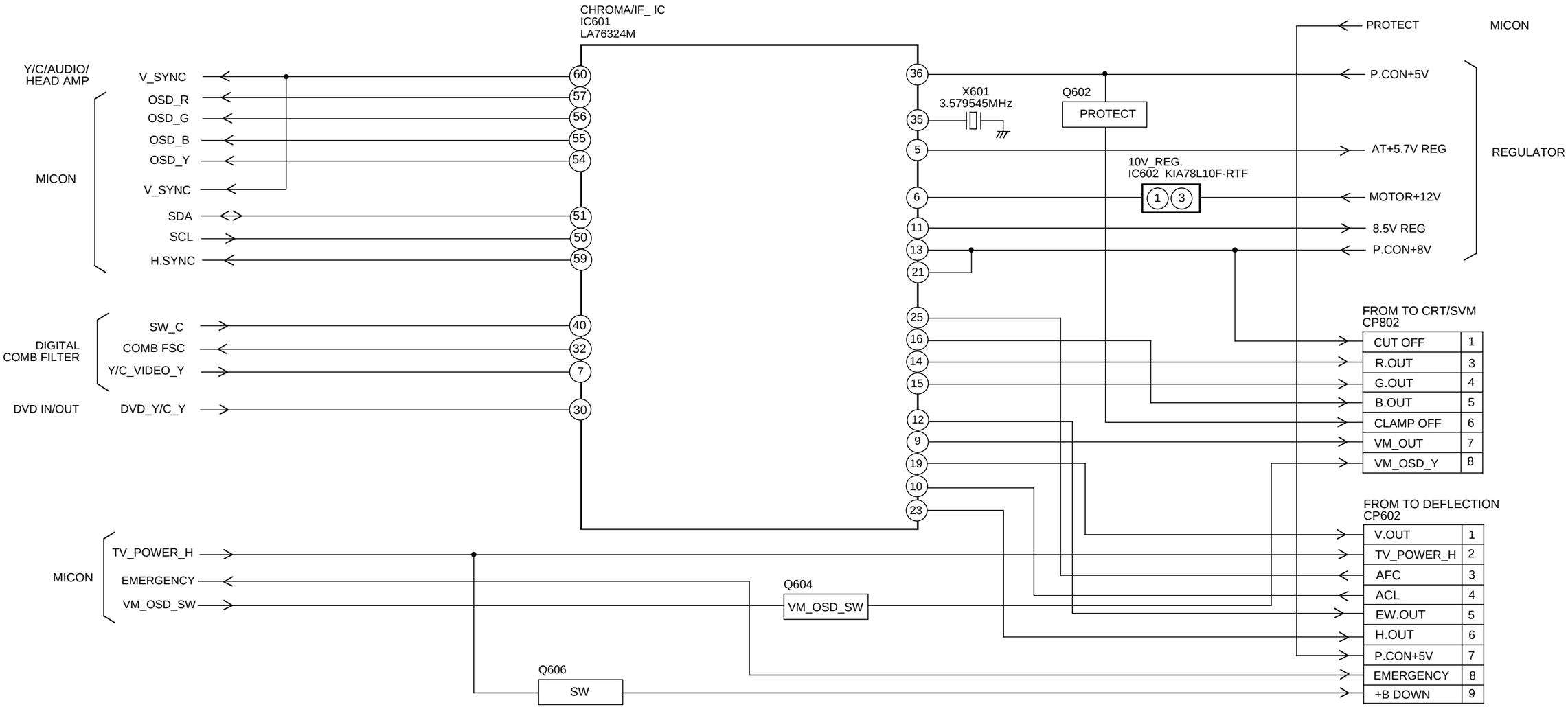


# IN/OUT BLOCK DIAGRAM

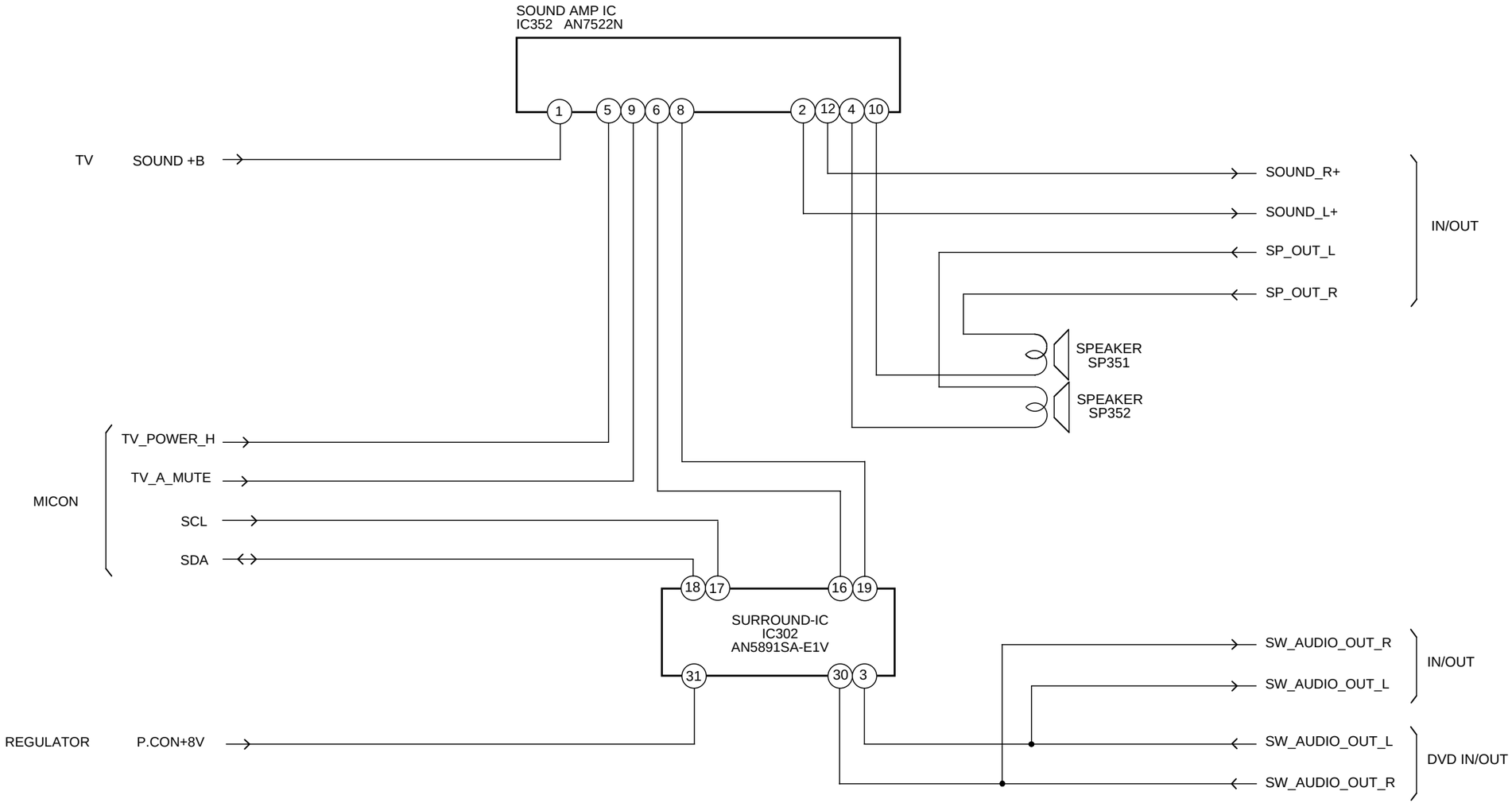


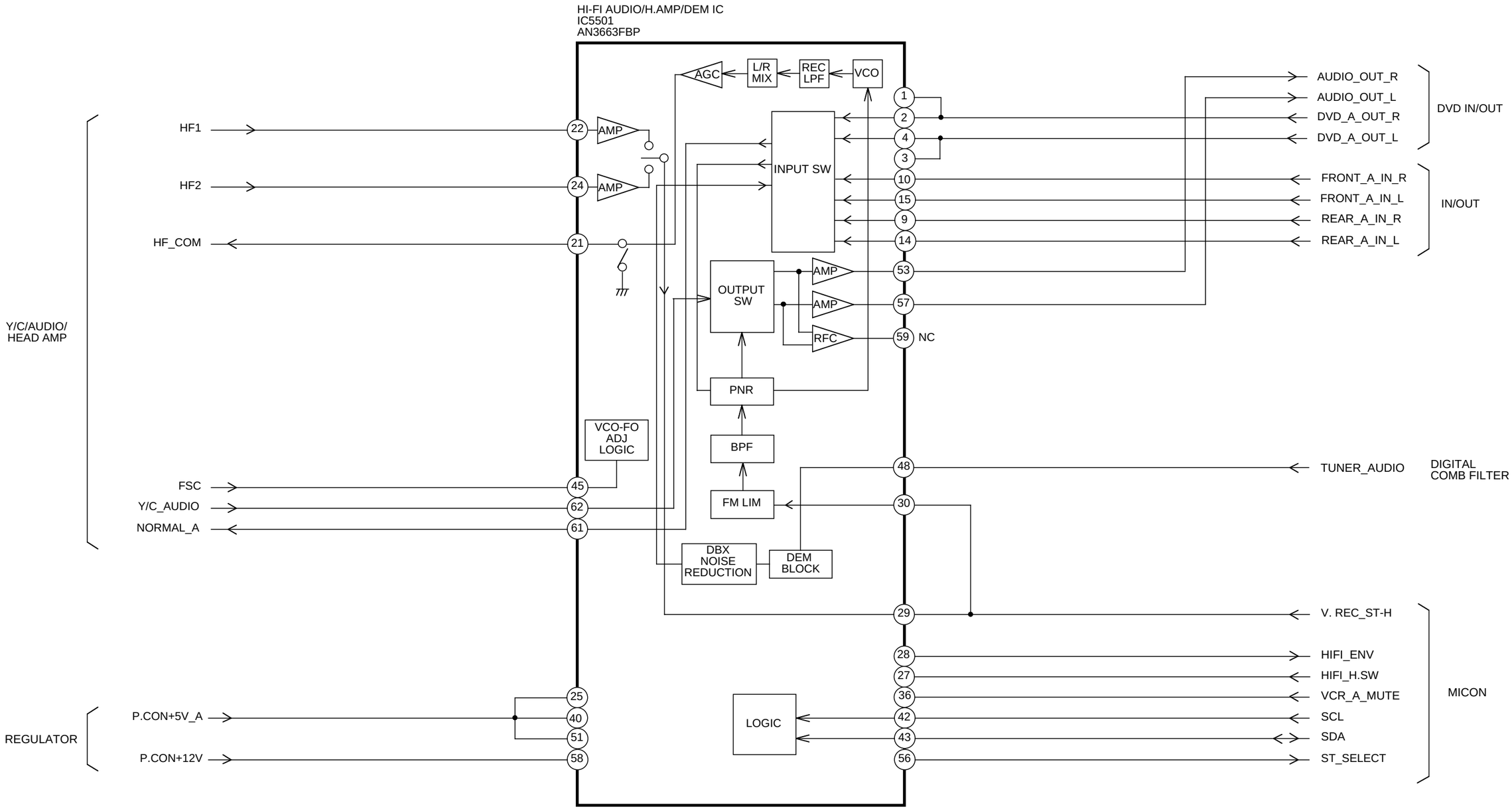
# CHROMA/IF BLOCK DIAGRAM



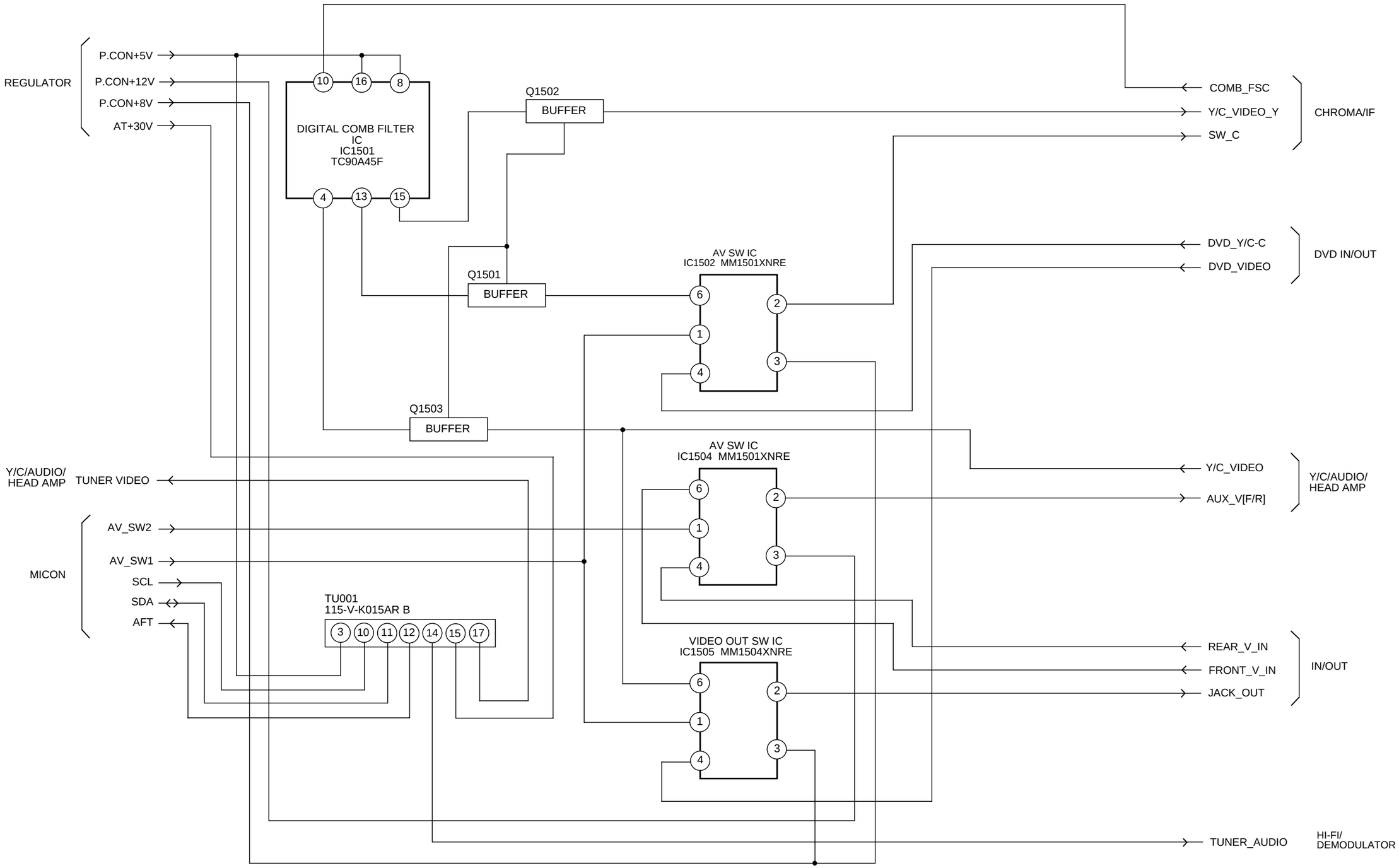
# SOUND AMP/SURROUND BLOCK DIAGRAM



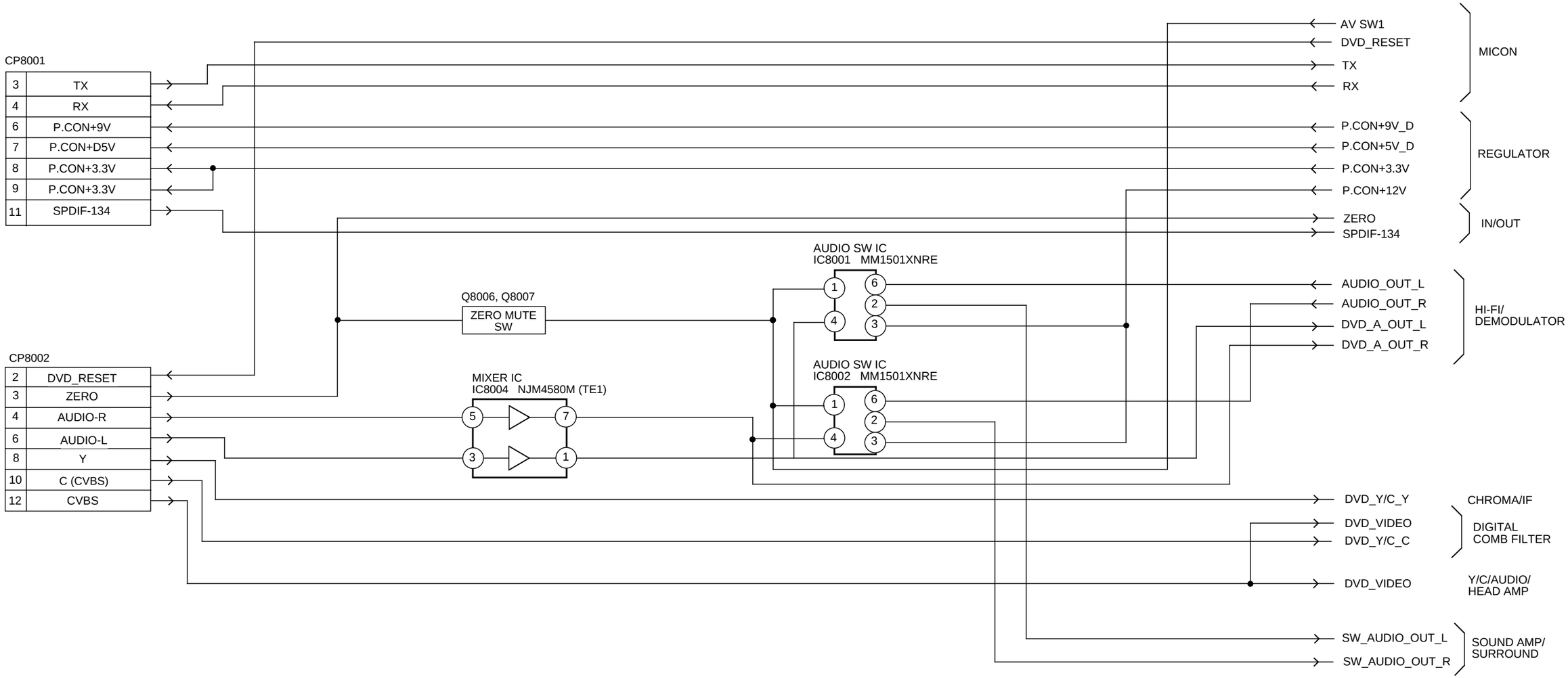
# HI-FI/DEMODULATOR BLOCK DIAGRAM



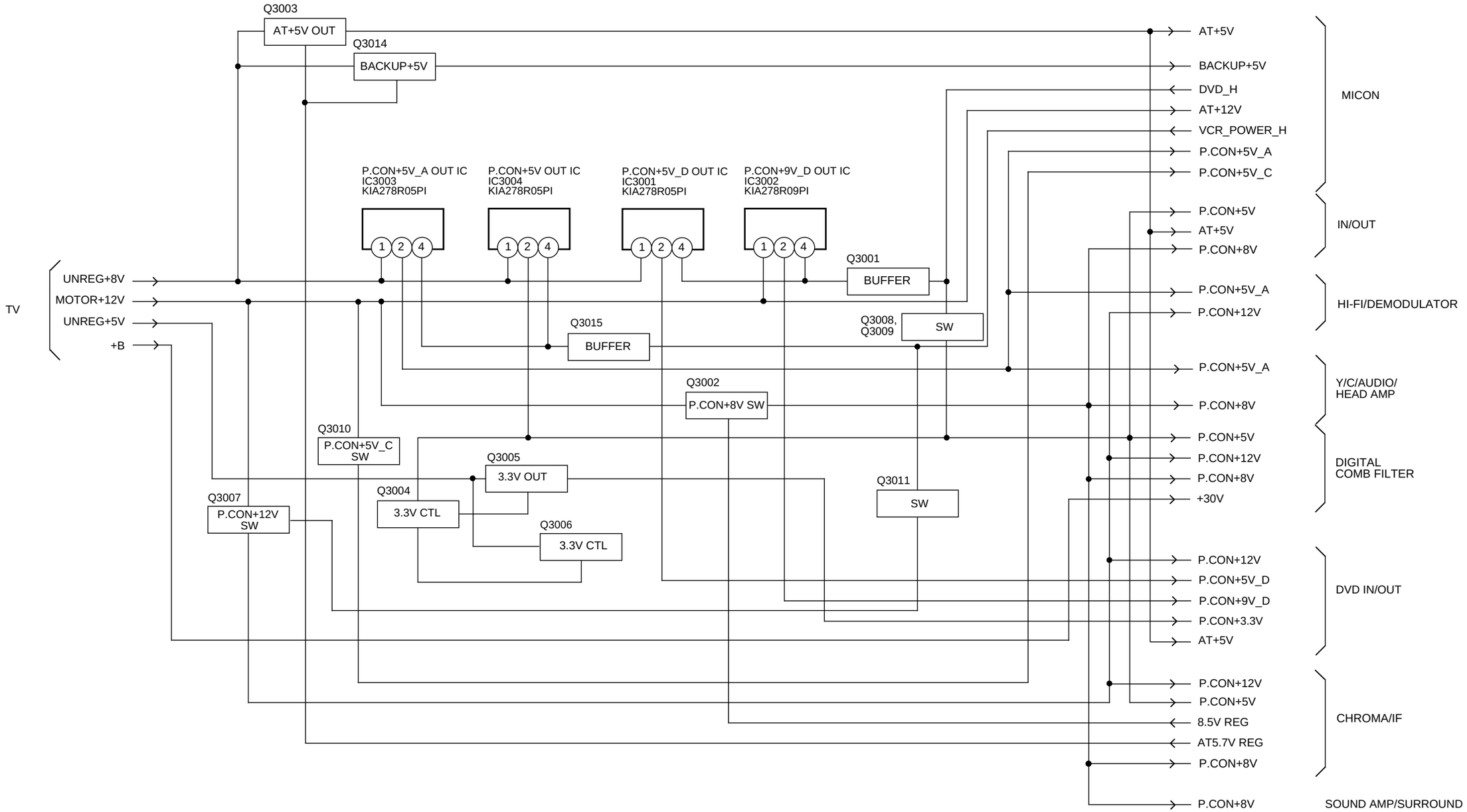
# DIGITAL COMB FILTER BLOCK DIAGRAM



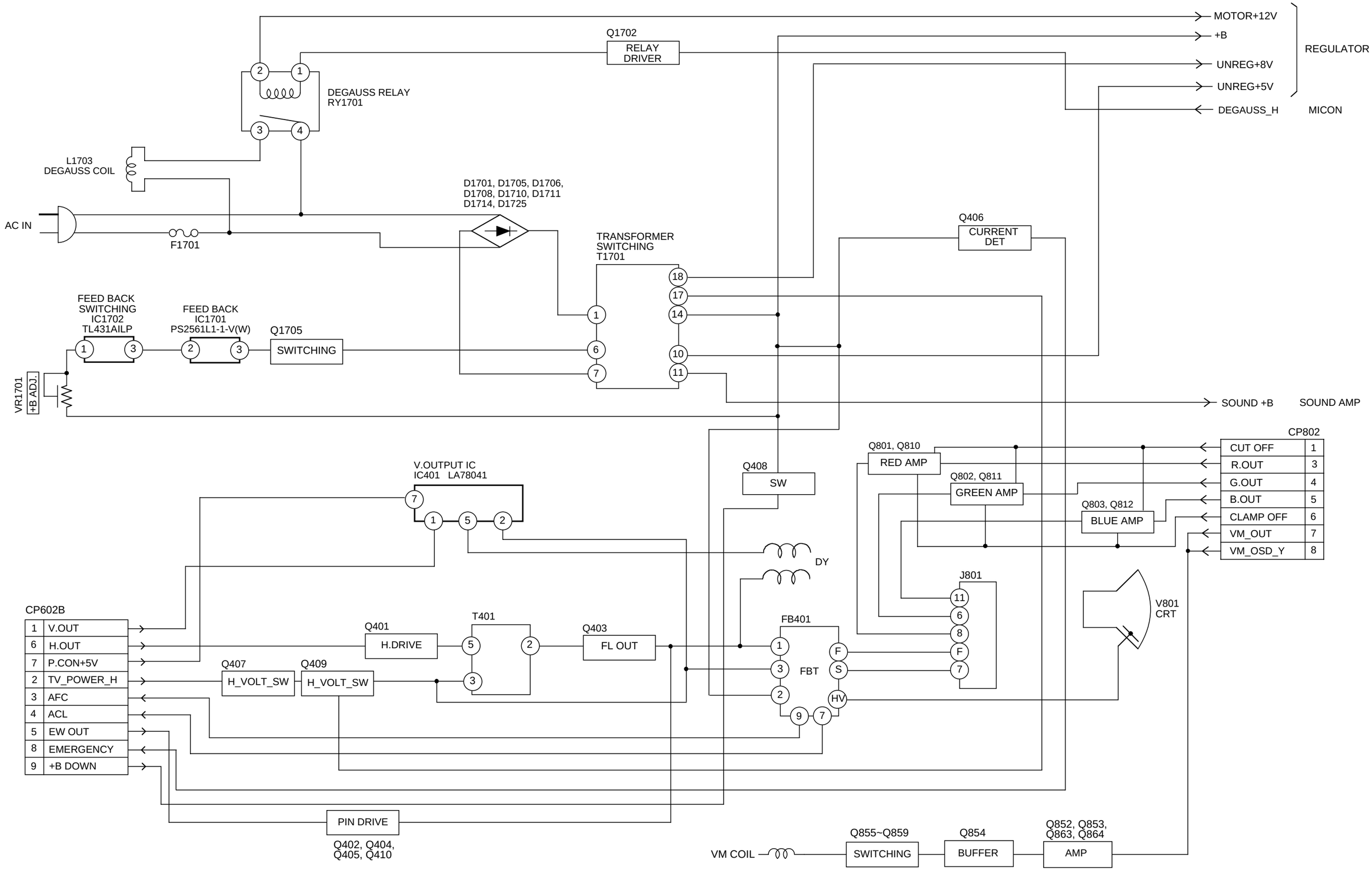
# DVD IN/OUT BLOCK DIAGRAM



# REGULATOR BLOCK DIAGRAM

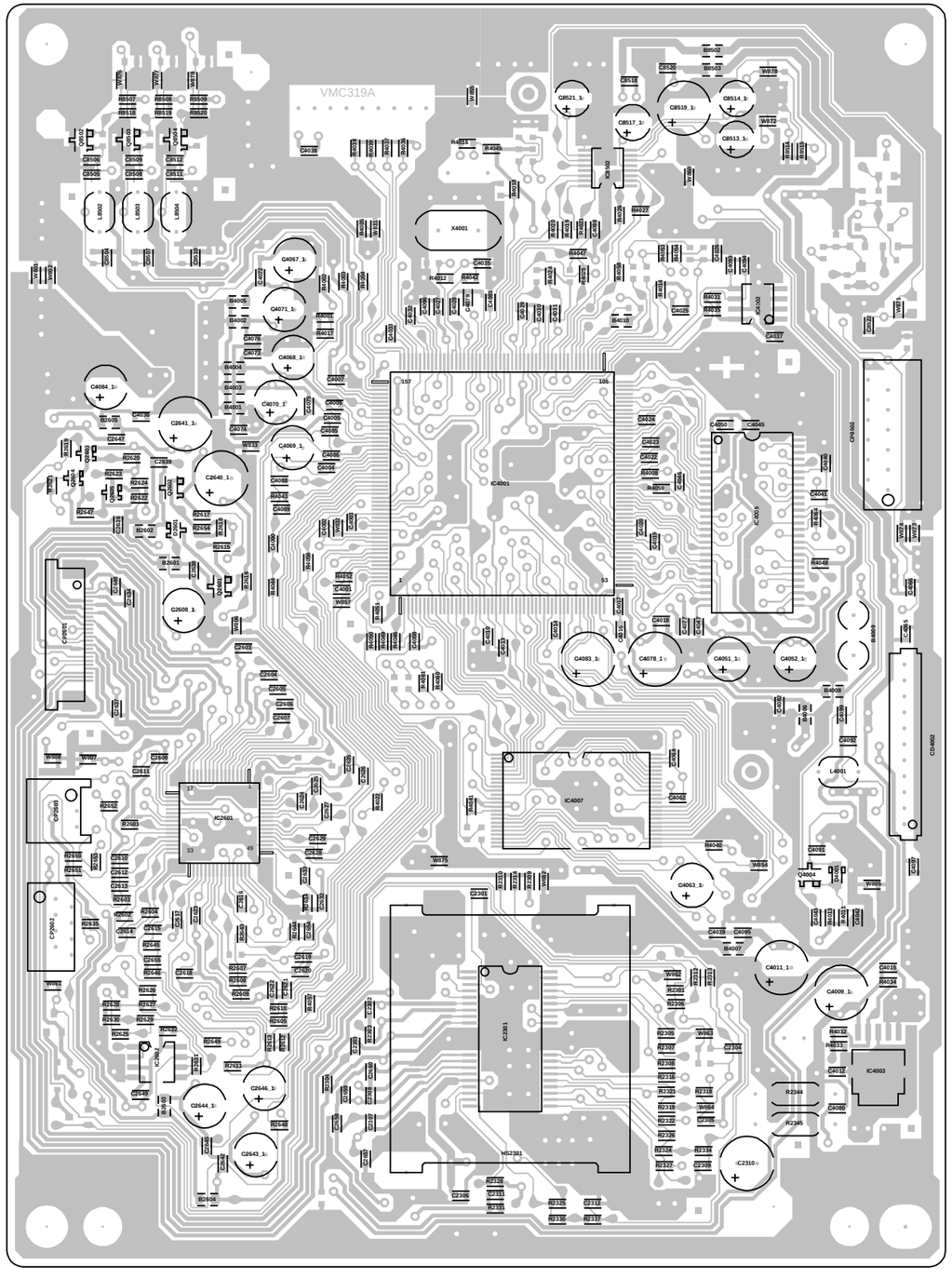


# TV BLOCK DIAGRAM

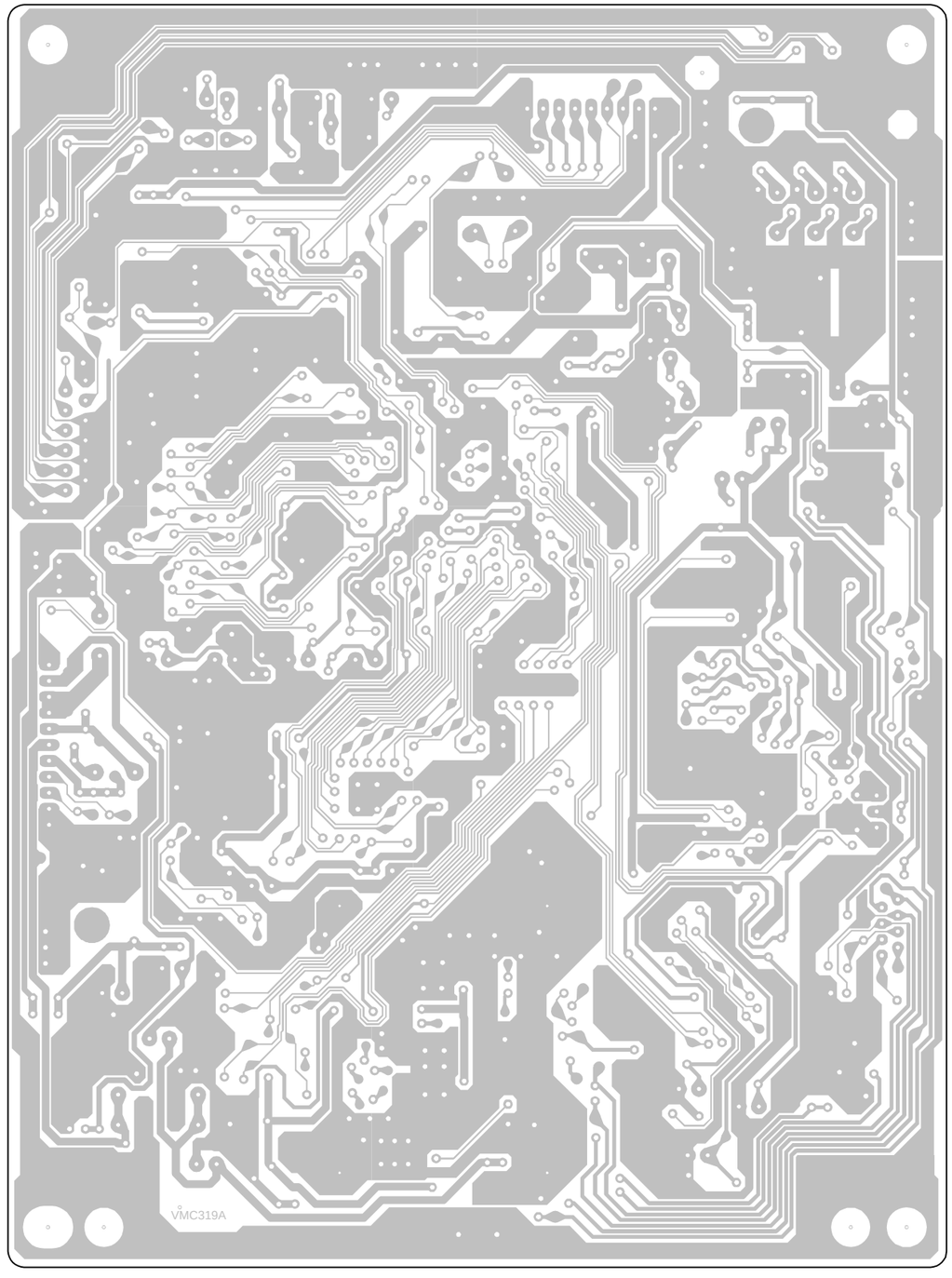


# PRINTED CIRCUIT BOARDS

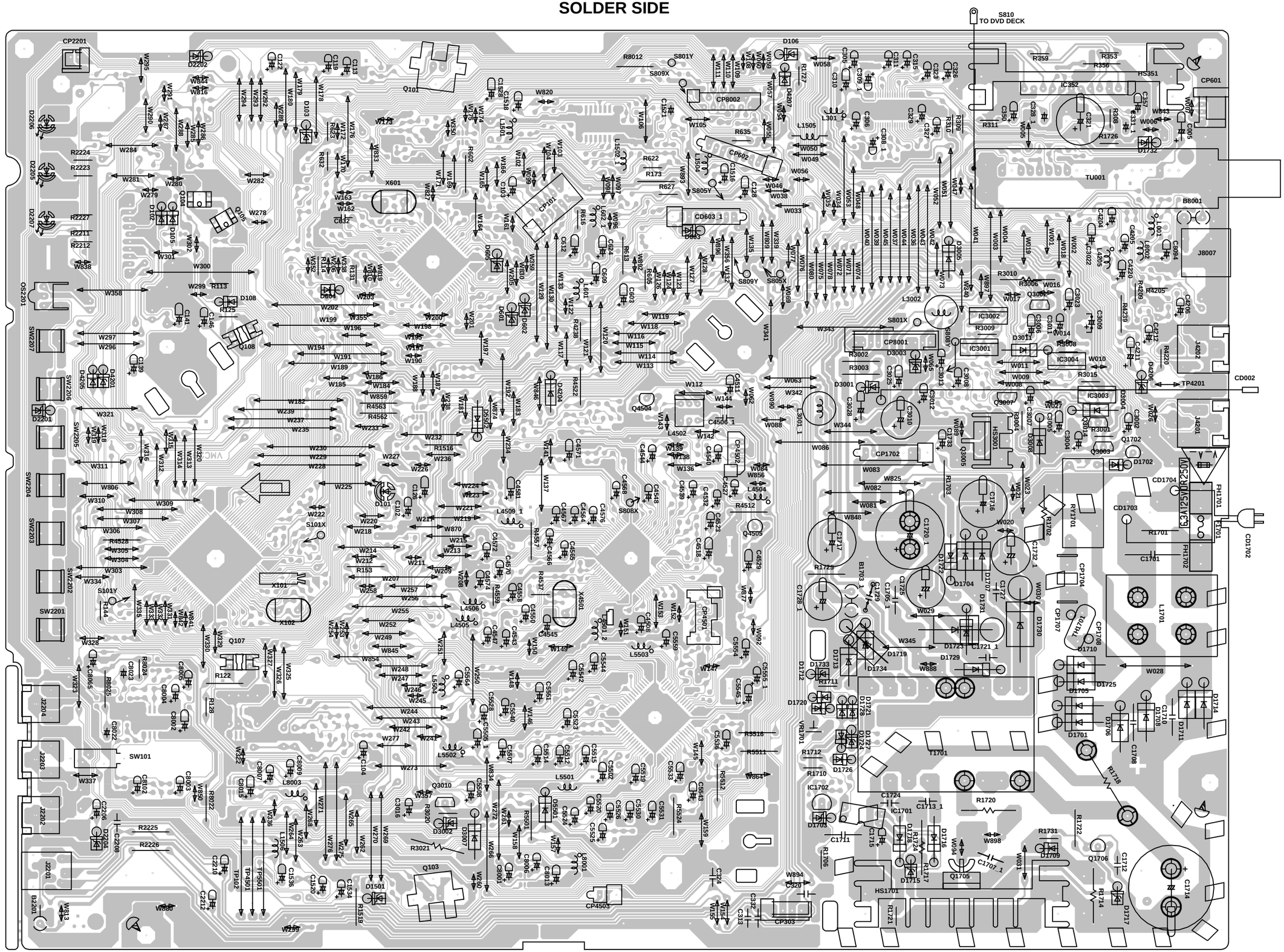
## DVD (TOP SIDE)




## DVD (BOTTOM SIDE)



# PRINTED CIRCUIT BOARDS
# VCR (INSERTED PARTS)
## SOLDER SIDE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TO DVD DECK
CP2201
D2202
Q101
R8012
S801Y
S809X
D106
CP8002
D4207
R1727
W058
C305
C309_1
C310
L301
C306
C308_1
C315
C323
C326
C327
C329
R359
R353
R356
HS351
CP601
IC352
C350
C328_1
C321
R308
R311
R310
R309
C357
R331_1
W343
W006
W005
C005
D1732
TU001
B8001
J8007
C3022
L4205
C4204
C4205
L8002
L4001
C3004
C4220
R4209
R4205
C4206
C4212
R4220
J4202
J4201
CD002
TP4201
C4211
D4206
IC3004
IC3003
D3004
C3002
Q1702
R3001
Q3003
D1702
CD1704
CD1703
R1701
FH1701
FH1702
CD1702
R1702
RY1701
C1701
L1701
CP1704
CP1707
CP1706
TH1701
D1710
D1705
D1725
D1708
D1706
D1701
C1708
D1714
D1711
C1710
R1718
T1701
R1712
R1710
IC1702
C1724
IC1701
C1713_1
R1720
D1726
D1708
C1711
C1715
R1706
HS1701
R1721
D1715
R1724
D1716
R1722
R1731
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Q1706
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R1714
D1717
C1714
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W031
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W023
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C5545_1
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C333
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TP5501
W013
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W335
W334
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R3010
W887
W340
L3002
S801X
S805Y
S809Y
S805X
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R632
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D105
W278
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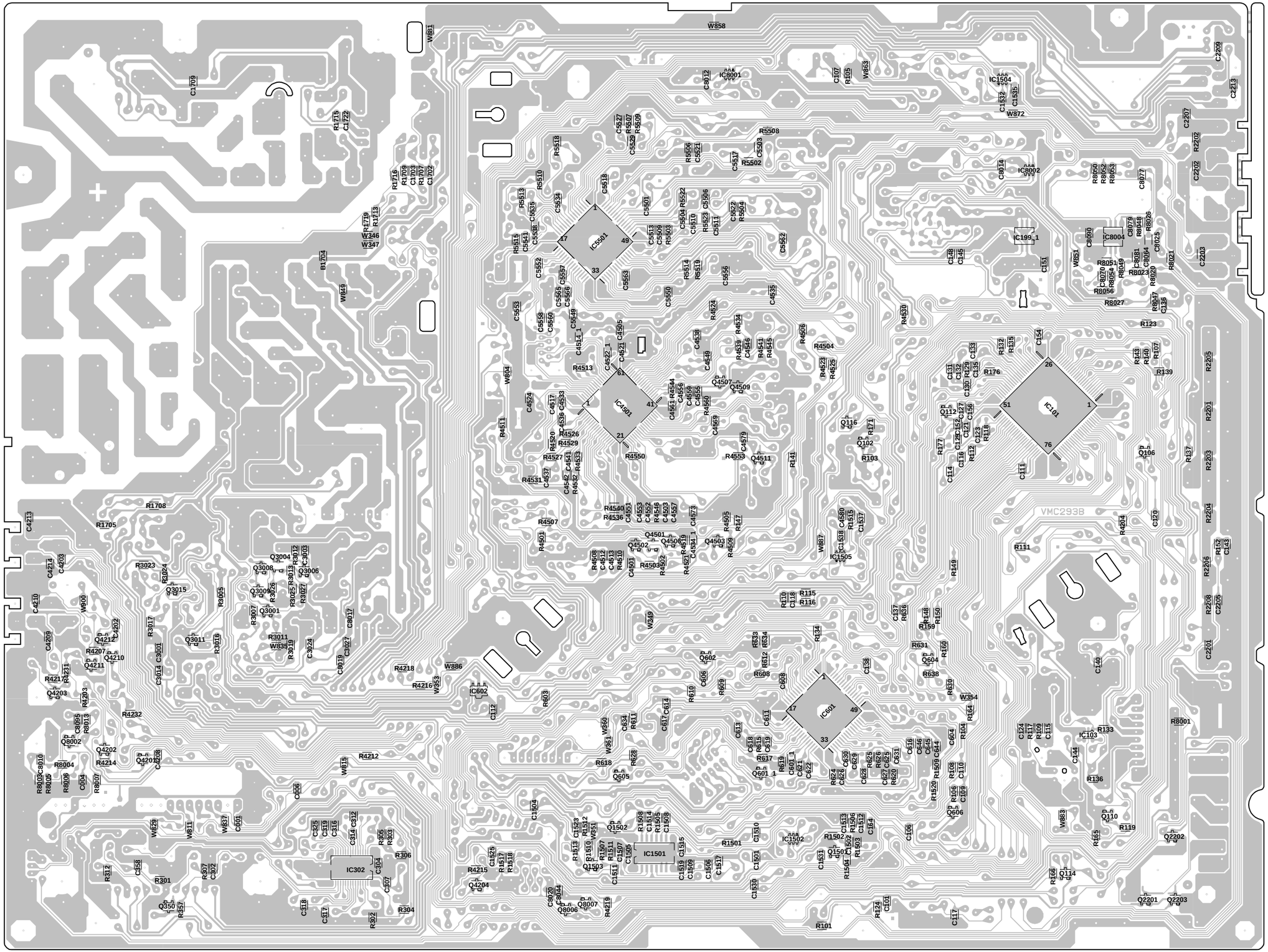
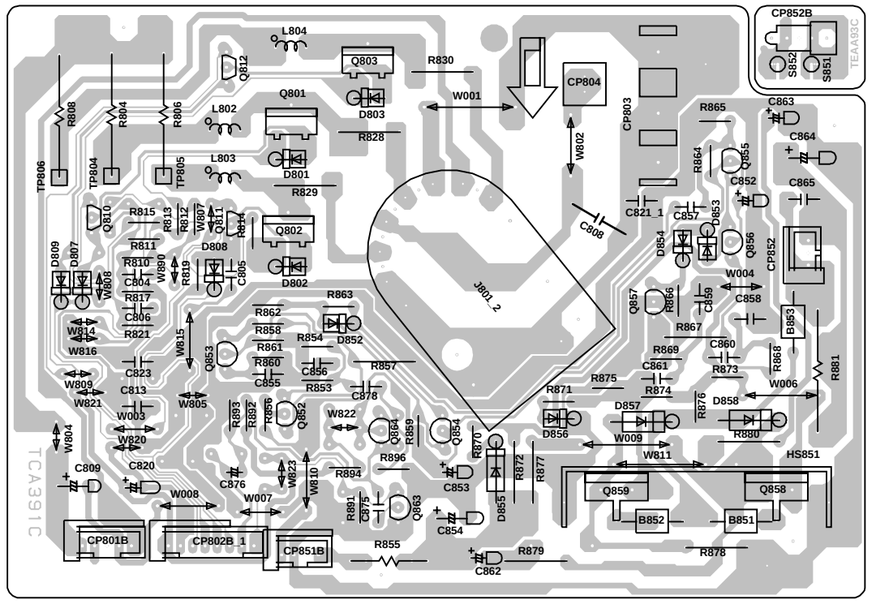
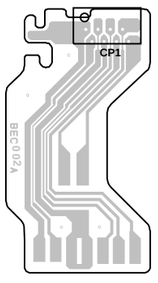
# PRINTED CIRCUIT BOARDS
# VCR (CHIP MOUNTED PARTS)
## SOLDER SIDE



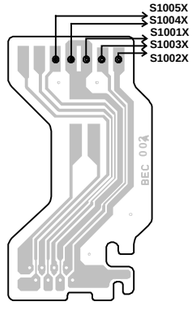
# PRINTED CIRCUIT BOARDS
## CRT/VM COIL
### SOLDER SIDE



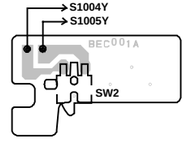

## RELAY (INSERTED PARS)
### SOLDER SIDE



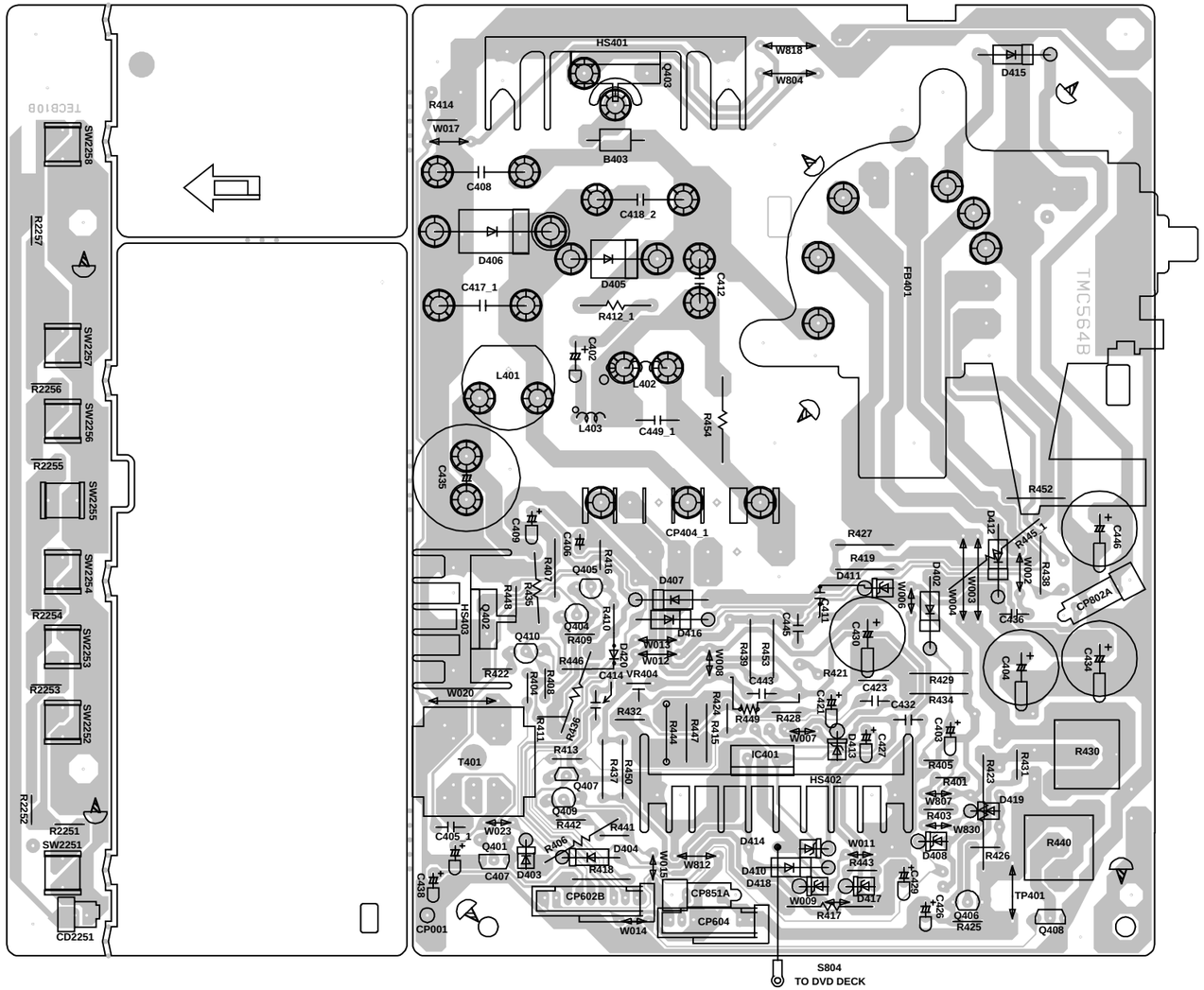

## RELAY (CHIP MOUNTED PARS)
### SOLDER SIDE




## SW
### SOLDER SIDE



# PRINTED CIRCUIT BOARDS
# DEFLECTION/OPERATION
## SOLDER SIDE



# MPEG/MICON SCHEMATIC DIAGRAM

## (DVD PCB)

MPEG/MICON/DSP IC
IC4001
ZR36762

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

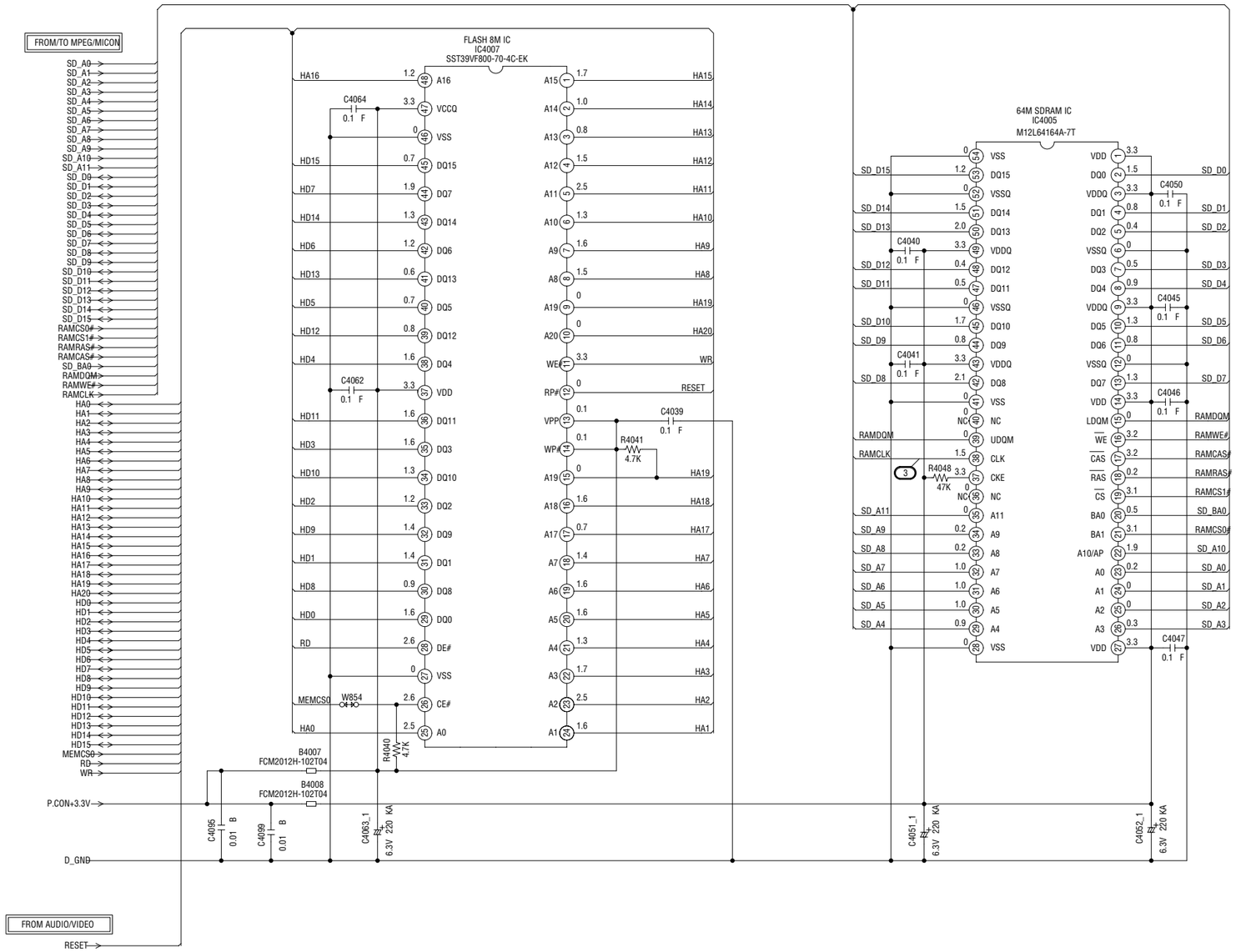
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

DIGITAL AUDIO SIGNAL(PB)

PCB130
VMC319

# MEMORY SCHEMATIC DIAGRAM

(DVD PCB)




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# RF AMP/DSP SCHEMATIC DIAGRAM

## (DVD PCB)

FFC(P=0.5mm)
CD2601
2H001901

FROM/TO LODER

CP2601
IMSA-9631S-24Y901

| | | |
|---|---|---|
| 24 | T- | TR- |
| 23 | T+ | TR+ |
| 22 | F- | FO- |
| 21 | F+ | FO+ |
| 20 | MON(DVD) | DVDPD |
| 19 | NC(SW) | NC |
| 18 | VOL(DVD) | VR_DVD |
| 17 | GND(DVD) | |
| 16 | LD(DVD) | DVDLD |
| 15 | LD(CD) | CDLD |
| 14 | VOL(CD) | VR_CD |
| 13 | GND(CD) | RF_GND |
| 12 | MON(COM) | CDPD |
| 11 | GND(NC) | NC |
| 10 | RF | OPU_RF |
| 9 | C | OPU_C |
| 8 | B | OPU_B |
| 7 | A | OPU_A |
| 6 | D | OPU_D |
| 5 | F | OPU_F |
| 4 | E | OPU_E |
| 3 | VCC | |
| 2 | VREF | OPU_VREF |
| 1 | GND(PDIC) | NC |

C2634 0.1 F
C2648 0.1 F

FFC(P=1.0mm)
CD2602
2H080701

FROM/TO LODER

CP2602
IMSA-9615S-08C-PP

| | | |
|---|---|---|
| 1 | SLD- | MOT_SLED- |
| 2 | SLD+ | MOT_SLED+ |
| 3 | SP1- | MOT_SPDL- |
| 4 | SP1+ | MOT_SPDL+ |
| 5 | LIMIT SW | HOME |
| 6 | GND | |
| 7 | SP_FG | NC |
| 8 | +5V | |

R2649 100

FROM LODER

CP2603
A2001WR2-3P

| | | |
|---|---|---|
| 1 | CLOSE | TIN_SW |
| 2 | GND(D) | TOUT_SW |
| 3 | OPEN | |

R2652 100
R2653 100
R2650 4.7K
R2651 4.7K

VR DVD CTL Q2603 2SK3018
VR CD CTL Q2604 2SK3018
VR SEL CTL Q2605 2SK3018
R2619 100
R2621 100
R2622 4.7K
R2624 4.7K
R2620 4.7K
R2647 4.7K
R2623 4.7K

C2626 0.1 F
C2632 0.1 F
C2627 0.033 B
C2628 0.001 B
C2629 0.001 B
C2624 0.001 B
C2625 0.001 B
C2633 0.001 B
R2614 12K +-1%
C2635 0.001 B

TP12 TP11 TP9 TP8 TP10

READ CHANNEL IC
IC2601
ZR36708TQC

1 DVDRFP
16 CD_A
33 LINK
48 SDEN

DVDRFN RFDC RFSIN ATOP ATON AIN AIP VPA RFAC BYP DIN DIP FNP FNN VNA MEVO RX
A2 B2 C2 D2 CP CN D C B A CD_D CD_C CD_B CD_F CD_E VPB VC DVDLD CDLD DVDPD CDPD VNB LDON MIRR MP MB MLFF MIN MEVO
SDATA SCLK V33 LCP LCN MNTR CE FE TE PI V25 V125 TPH DFT

C2603 0.0022 B
C2604 0.0022 B
C2605 0.0022 B
C2606 0.0022 B
C2607 33P CH
C2616 470P CH
R2643 1K
R2611 4.7K
R2612 4.7K
R2613 4.7K
C2654 0.01 B
R2644 2.2K
C2619 560P CH
C2620 0.0056 B
C2621 0.0056 B
C2622 0.0056 B
C2623 0.1 F
R2607 1.2K
R2608 1.2K
R2609 1.2K
R2605 10K +-1%
R2610 5.1K +-1%
C2617 0.1 B
C2618 0.1 B
C2615 0.1 F
R2645 1K
R2646 2.2K
C2655 0.01 B
C2610 0.0068 B
C2612 0.033 B
C2613 220P CH
C2614 0.1 B
R2602 1.8M B
R2603 13K +-1%
R2604 27K +-1%
R2601 4.7K
R2648 13K
C2611 0.1 F

TP19 TP20 TP21 TP22 TP27 TP28 TP34 TP29 TP30 TP31 TP25 TP37 TP36

C2608_1 47 6.3V KA
C2609 0.1 F

OPU_D OPU_C OPU_B OPU_A OPU_F OPU_E OPU_VREF OPU_RF

M_GND P.CON+3.3V D_GND RF_GND W807 W808 W861 SGND P.CON+5V

TP043 TP39 TP40 TP41 TP42

DVD LD CTL Q2601 2SA1036K
CD LD CTL Q2602 2SA1036K
R2615 10
R2616 1K
R2617 1K
R2618 18
R2654 18
C2640_1 6.3V 100 KA
C2641_1 6.3V 100 KA
B2601 FCM2012H-102T04
B2602 FCM2012H-102T04
D2601 KDS120RTK
C2636 0.1 F
C2637 0.1 F
C2638 0.1 F
C2639 0.1 F
DVDLD CDLD

FROM/TO MPEG/MICON

SPDL_SENS TOUT_SW TIN_SW RFA_SDEN RFA_DATA RFA_SCLK AAF_CE AAF_FE AAF_TE AAF_PI VR_SEL FNN FNP VBIASS0 VBIASS1 DEFECT LINK MIRR LDON HOME

MOT_SPDL+ MOT_SPDL-
R2625 4.7K
R2626 4.7K
R2627 1.5K
R2631 1M
R2632 4.7K
R2629 1.5K
R2628 22K
R2630 22K
IC2602 BA10358F-E2 DUAL OP-AMP IC
C2649 0.1 B

RF_GND D_GND RF_A5V
W806
C2646_1 47 6.3V KA
C2647 0.1 F
C2642 0.1 F
C2643_1 47 6.3V KA
C2644_1 47 6.3V KA
C2645 0.1 F
B2605 FCM2012H-102T04
B2604 FCM2012H-102T04
B2603 FCM2012H-102T04
R2310 5.6K
R2312 5.6K
W982 W875

TP15 RFA_SDEN
TP16 RFA_DATA
TP17 RFA_SCLK
TP18
AAF_CE AAF_FE AAF_TE AAF_PI
TP26 VBIASS0
TP38 VBIASS1
TP35 DEFECT
TP33 LINK

SMUTE TRACK_DAC FOCUS_DAC SPINDLE_PWM SLED_PWM ADCIN_7 ADCIN_5 ADCIN_6 VCC+9V M_GND

R2306 5.6K
R2314 5.6K
R2313 5.6K
R2309 470
R2318 5.6K
C2304 220P CH
C2305 220P CH
C2309 0.001 B
C2312 0.001 B
TP45
W863 W864
R2334 10K
R2324 1K
R2301 1K
R2307 27K
R2319 27K
TP46
W862
R2305 51K
R2308 20K
TP138
HS73 HS7300 763WSA0023
R2316 20K
TP139
R2321 51K
R2322 4.7K
TP140
R2326 8.2K
R2327 4.7K
R2344 1.2 1/2W
R2345 1.2 1/2W

P.CON+9V
MOTOR DRIVE IC LA6560 IC2301
S-GNDD VCONT MUTE VIN4 VIN4- VIN4+ VREF-IN VIN1-SW VREF-OUT REG-OUT REG-IN VIN3+ VIN3- VIN3 VIN2+ VIN2- VIN2 VIN1+B
FWD REV VCC2 VLD- VLD+ VD4+ VD4- VD3+ VD3- VD2+ VD2- VD1+ VD1- VCC1 VIN1 VIN1-A VIN1+A VIN1+B
R2337 10K
R2330 1K
TP141 TP24
R2328 4.7K
R2325 6.8K
TP64 TP65 TP69 TP68 TP56 TP55 TP66 TP67
C2301 0.1 F
C2306 0.1 F
C2310 220 MH7 10V
C2311 0.1 B
R2331 470
C2302 0.1 B
R2303 2.2
C2303 0.1 B
R2304 2.2
C2307 0.1 B
C2308 0.1 B

TR+ TR- FO+ FO- MOT_SPDL+ MOT_SPDL- MOT_SLED+ MOT_SLED-

PCB130
VMC319

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# AUDIO/VIDEO SCHEMATIC DIAGRAM

(DVD PCB)

FROM/TO MPEG/MICON

P.CON+A5V
DAC_VIDEO_C
DAC_VIDEO_B
DAC_VIDEO_D
P.CON+5V
P.CON+3.3V
RESET
MC
MD
ML
AMCLK
ABCLK
ALRCLK
ASDATA0
GND
D_GND

R8518 470
R8519 470
R8520 470
R8507 470
R8508 470
R8509 470

W876 → DAC_C[C]_VIDEO (10)
W877 → DAC_B[Y]_VIDEO (9)
W879 → DAC_D_DVD_VIDEO (8)

C8505 12P CH
C8504 150P CH
L8502 1uH 0305
C8506 150P CH
VIDEO_BUFFER Q8502 KTA1504S_Y_RTK
C8508 12P CH
C8507 150P CH
L8503 1uH 0305
C8509 150P CH
VIDEO_BUFFER Q8503 KTA1504S_Y_RTK
C8511 12P CH
C8510 150P CH
L8504 1uH 0305
C8512 150P CH
VIDEO_BUFFER Q8504 KTA1504S_Y_RTK

W680 W685 W873 W874

TO MEMORY
RESET

B8503 FCM2012H-102T04
B8502 FCM2012H-102T04
C8520 0.1 F
C8519_1 6.3V 100 KA
C8517_1 6.3V 22 KA
C8518 0.1 F
R8514 4.7K 1/16W
R8515 100K 1/16W
C8514_1 50V 4.7 KA
C8513_1 50V 4.7 KA
W878 (6)
W872 (7)

STEREO DAC IC IC8512 PCM1742KE(G)/2K
VOUTR VOUTL VCC VDD DGND LRCK DATA BCK
AGND VCOM ZEROR/ZEROA ZEROL/NA MD MC ML SCK
NC
C8521_1 16V 10 KA
ZERO MD MC ML AMCLK ABCLK ASDATA0 ALRCLK

FFC(1.25P) CD8501 2H0C2204

FROM/TO DVD IN/OUT

CP8502 (CP8002) IMSA-9604S-12Z13

| | |
|---|---|
| CVBS | 1 |
| GND | 2 |
| C(CVBS) | 3 |
| GND | 4 |
| Y | 5 |
| GND | 6 |
| AUDIO-L | 7 |
| GND | 8 |
| AUDIO-R | 9 |
| ZERO | 10 |
| DVD RESET | 11 |
| GND | 12 |

DAC_D_DVD_VIDEO
DAC_C[C]_VIDEO
DAC_B[Y]_VIDEO
L_AUDIO
R_AUDIO
ZERO W871
RESET
C8522 0.001 B

PCB130 VMC319

◁ PLAYBACK COLOR SIGNAL
◀ PLAYBACK LUMINANCE SIGNAL
◁◁ PLAYBACK VIDEO SIGNAL
◀◀ AUDIO SIGNAL(PB)
◀◀ DIGITAL AUDIO SIGNAL(PB)

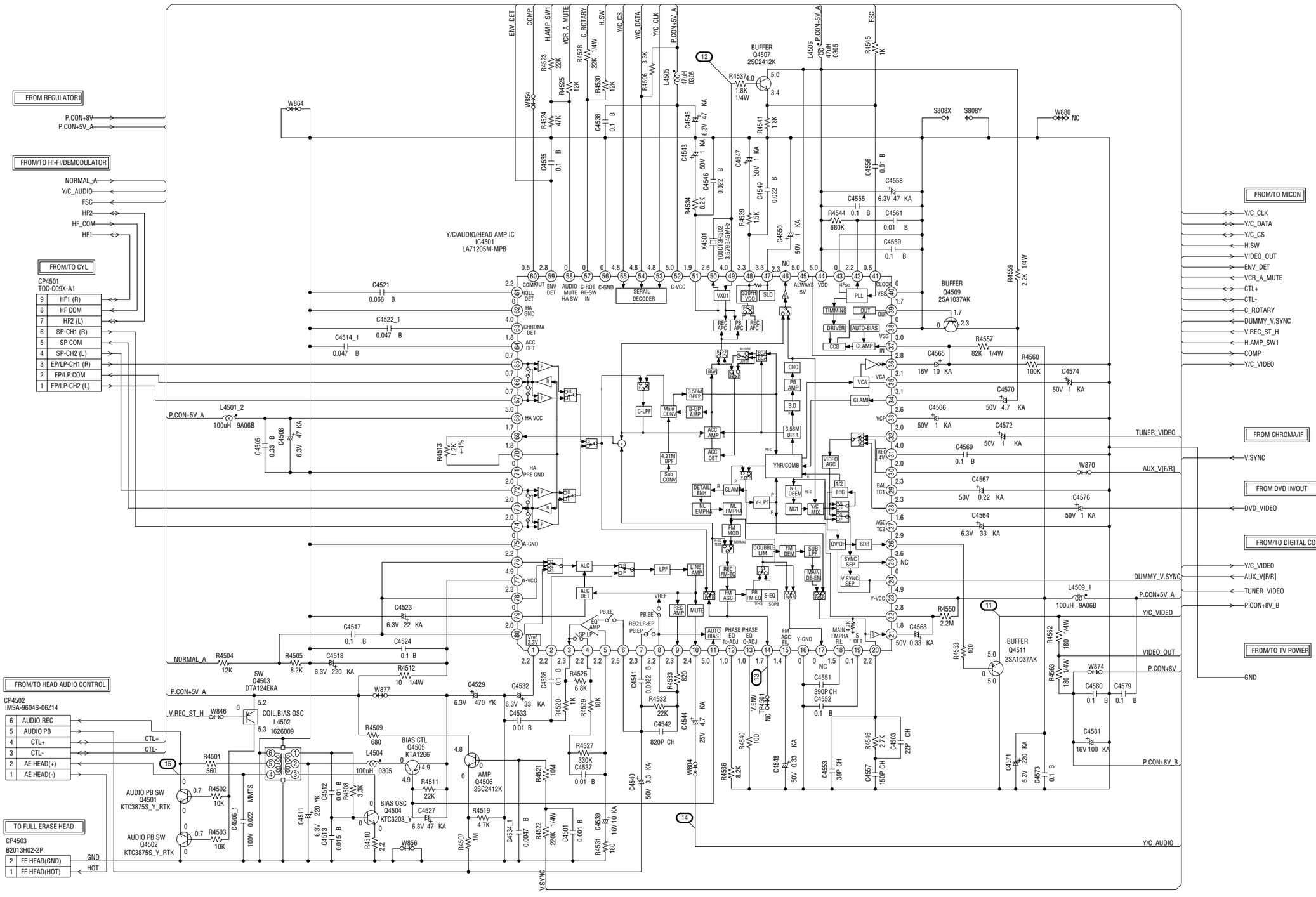
◀◀ R.SIGNAL+ COMPONENT SIGNAL(U)
≪ B.SIGNAL+ COMPONENT SIGNAL(V)

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

# Y/C/AUDIO/HEAD AMP SCHEMATIC DIAGRAM

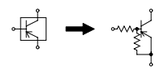
(VCR PCB)



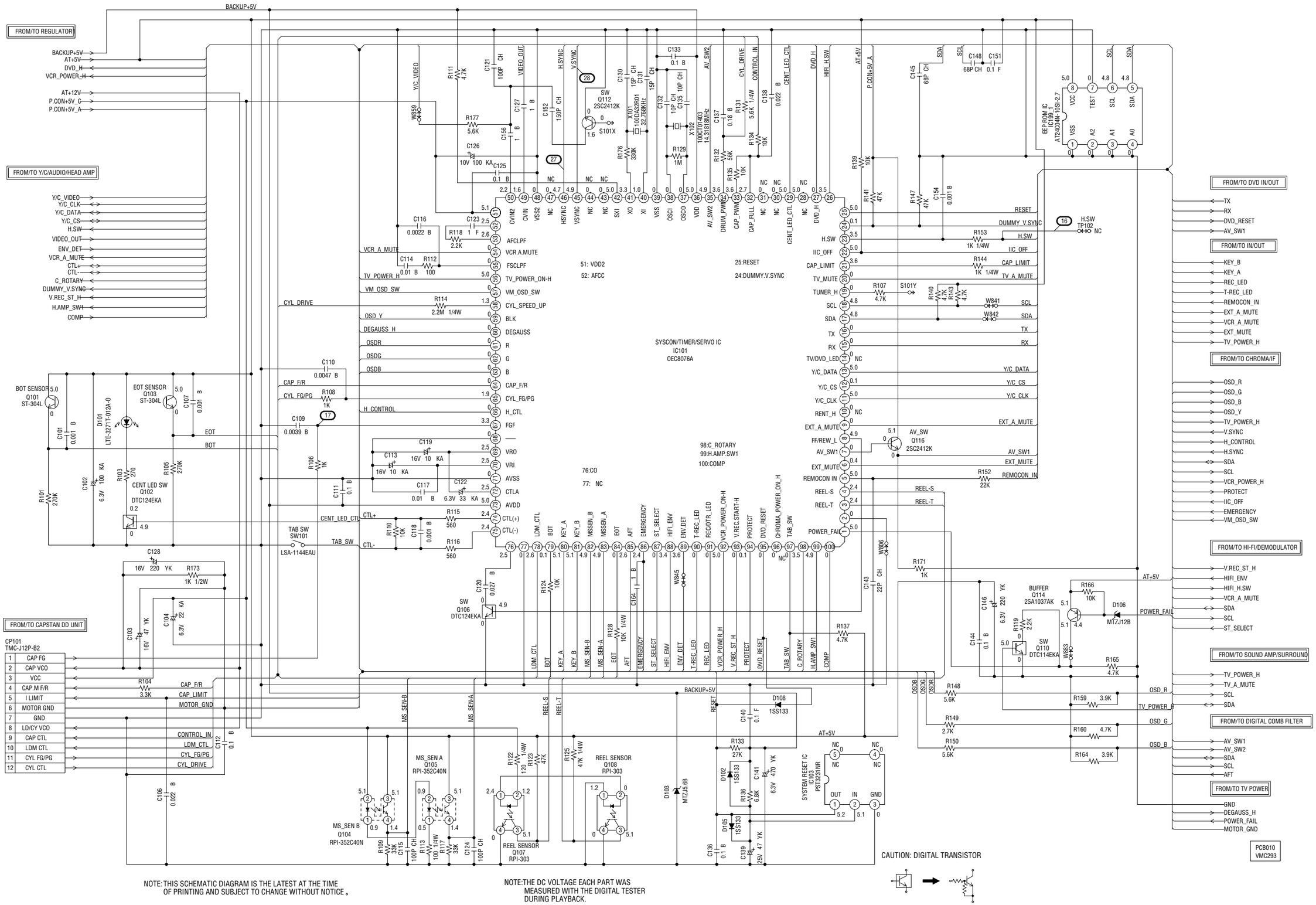

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

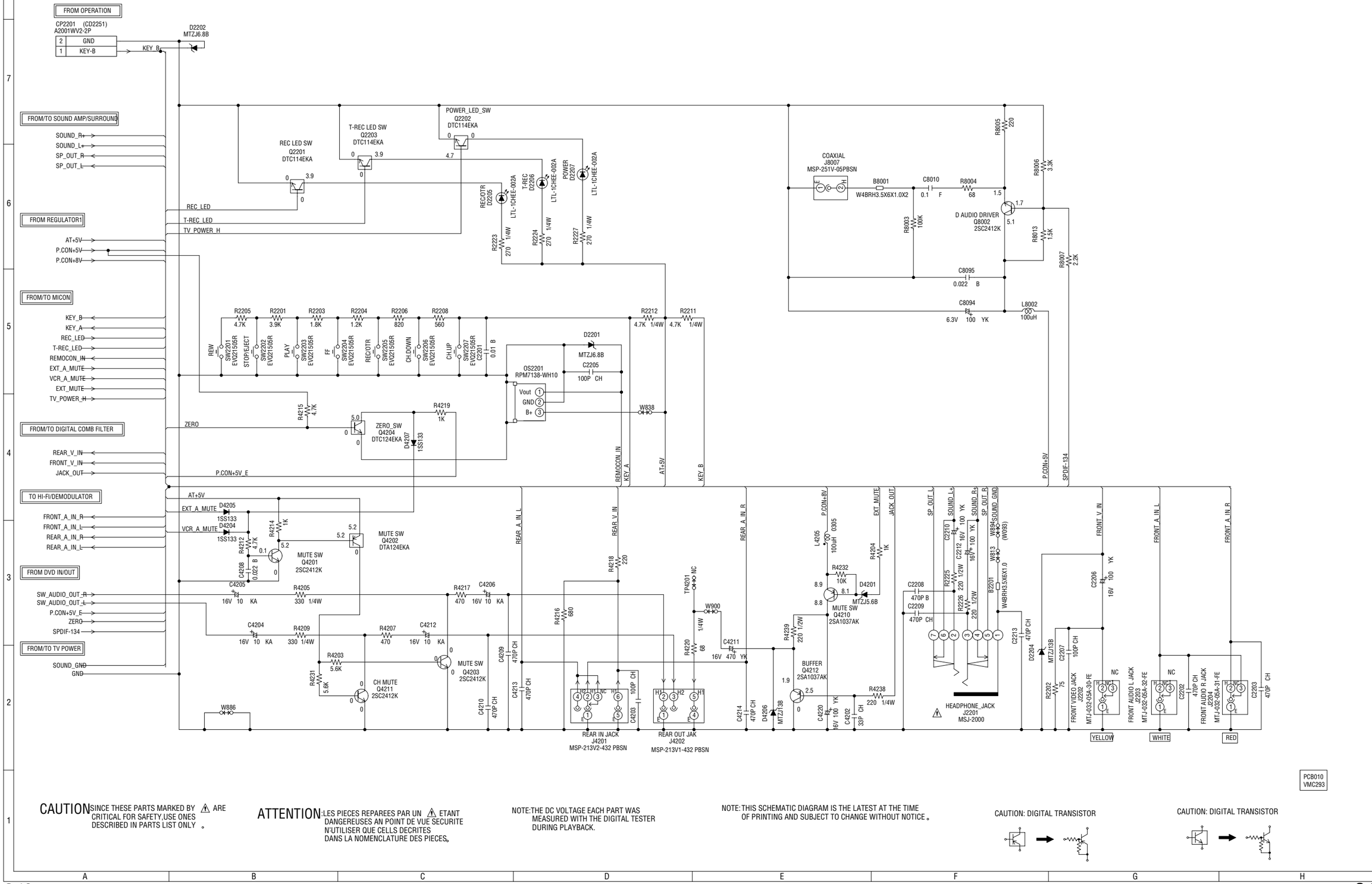
CAUTION: DIGITAL TRANSISTOR



# MICON SCHEMATIC DIAGRAM (VCR PCB)



# IN/OUT SCHEMATIC DIAGRAM
## (VCR PCB)




PCB010
VMC293

**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

**ATTENTION**:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

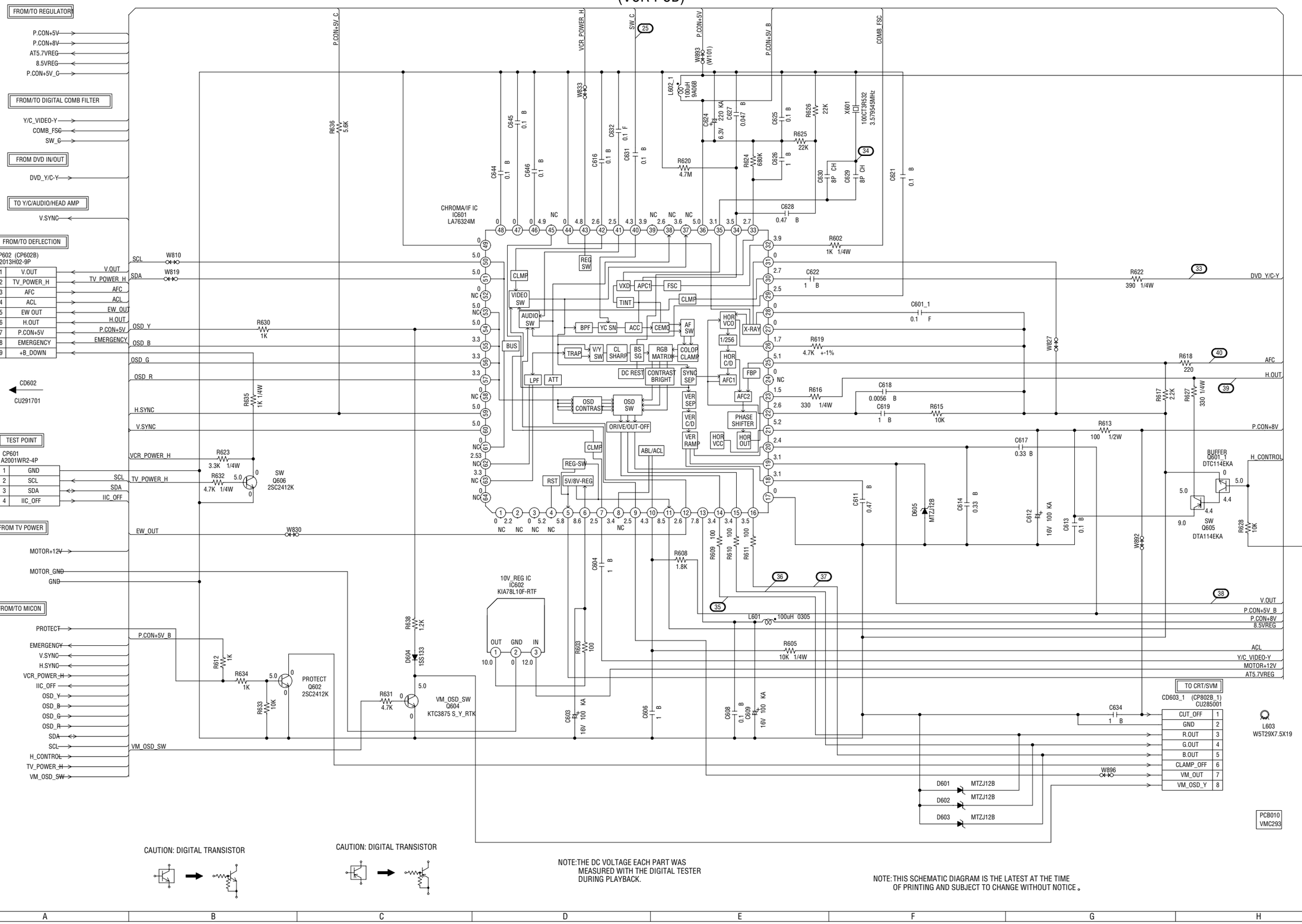
CAUTION: DIGITAL TRANSISTOR



CAUTION: DIGITAL TRANSISTOR

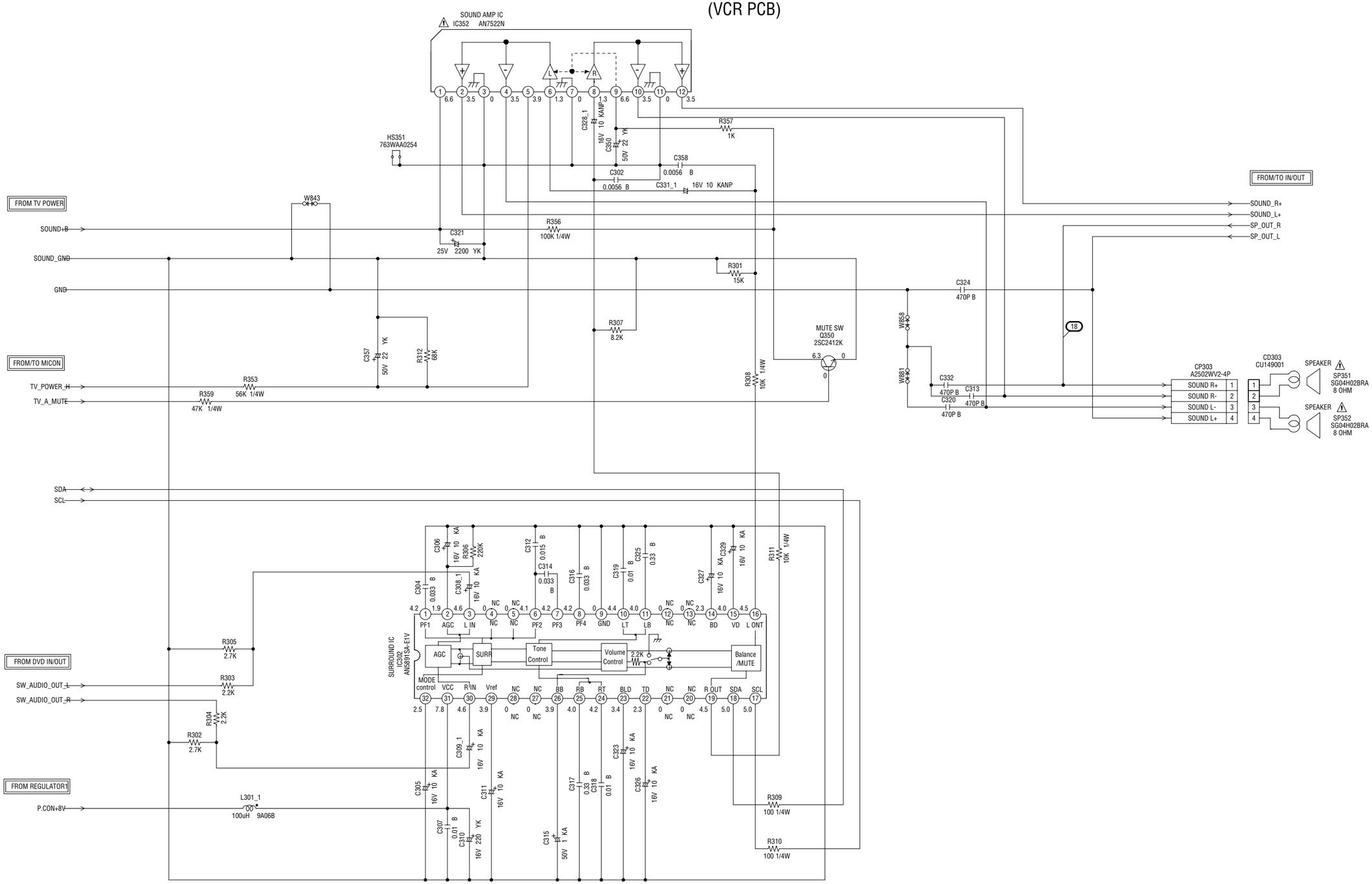
# CHROMA/IF SCHEMATIC DIAGRAM

## (VCR PCB)



# SOUND AMP/SURROUND SCHEMATIC DIAGRAM

## (VCR PCB)




PCB010
VMC293

**ATTENTION:** LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

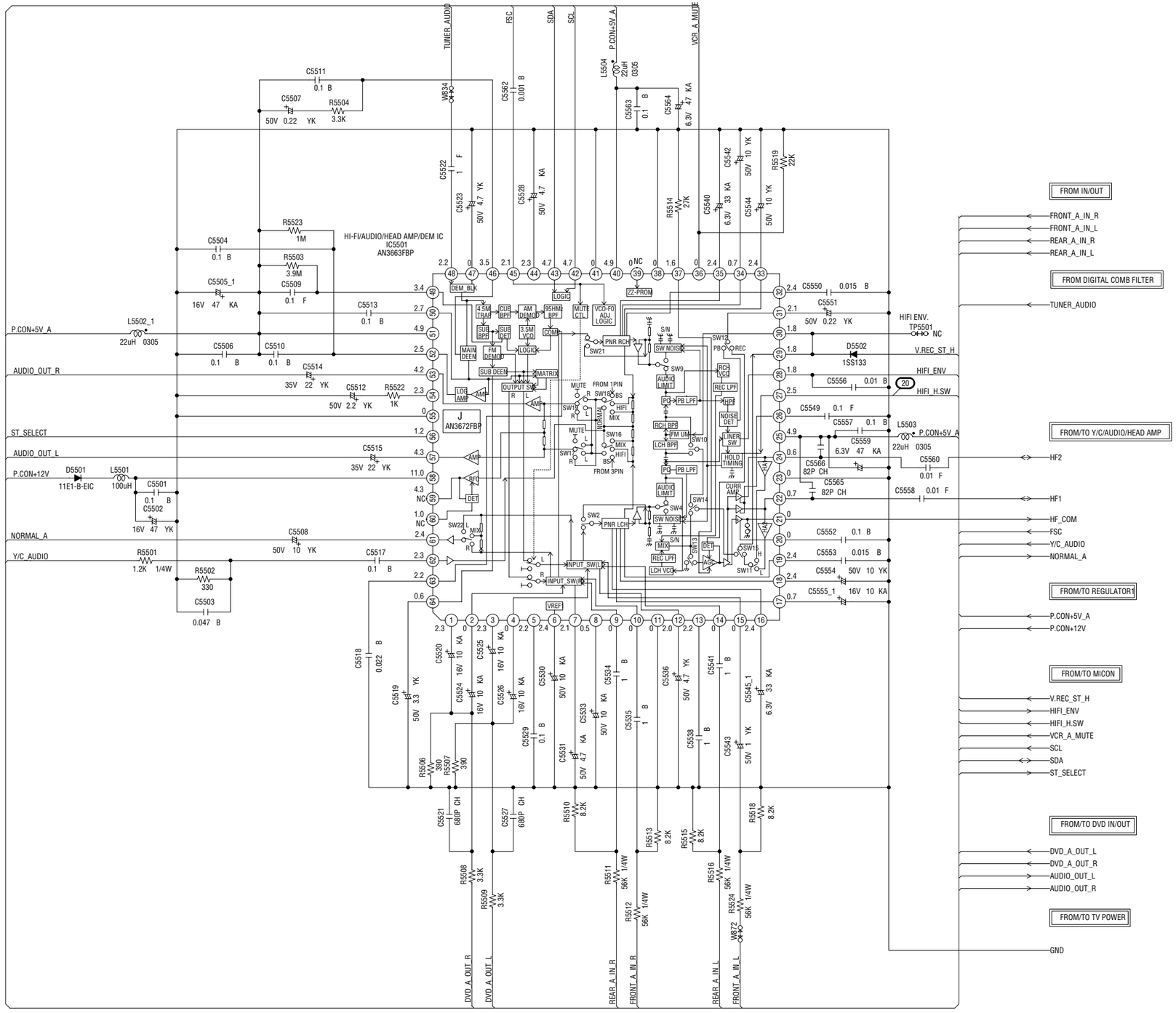
**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# HI-FI/DEMODULATOR SCHEMATIC DIAGRAM

## (VCR PCB)

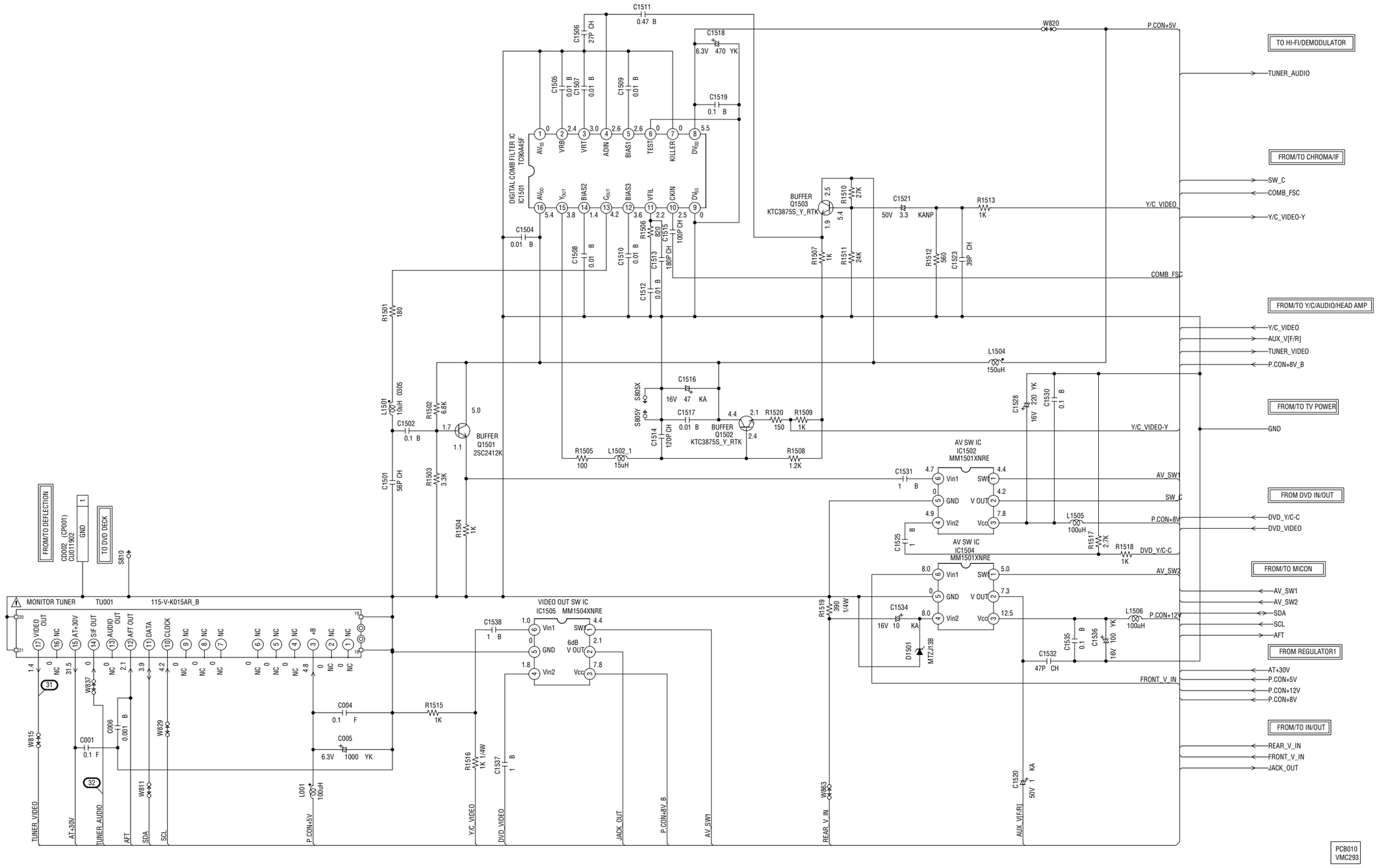



NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

# DIGITAL COMB FILTER SCHEMATIC DIAGRAM

(VCR PCB)




**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

**ATTENTION** :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

# DVD IN/OUT SCHEMATIC DIAGRAM

## (VCR PCB)

FROM/TO MPEG/MICON

CP8001 (CD4002)
A2001WV2-11P

| | |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | TX |
| 4 | RX |
| 5 | GND |
| 6 | P.CON+9V |
| 7 | P.CON+D5V |
| 8 | P.CON+3.3V |
| 9 | P.CON+3.3V |
| 10 | GND |
| 11 | SPDIF-134 |

W844 TX
W816 RX
C8019 56P CH
P.CON+9V_DH
P.CON+5V_D
P.CON+3.3V
S801X S801Y
SPDIF-134
C8017 0.01 B
R8001 4.7K

FROM/TO AUDIO/VIDEO

CP8002 (CP8502)
IMSA-9604S-12Z14

| | |
|---|---|
| 12 | CVBS |
| 11 | GND |
| 10 | C(CVBS) |
| 9 | GND |
| 8 | Y |
| 7 | GND |
| 6 | AUDIO-L |
| 5 | GND |
| 4 | AUDIO-R |
| 3 | ZERO |
| 2 | DVD RESET |
| 1 | GND |

W887 DVD_VIDEO
DVD_Y/C-C
DVD_Y/C-Y
ZERO
DVD_RESET
C8020 100P CH
C8044 0.1 B

ZERO MUTE SW
Q8007
DTC124EKA
ZERO MUTE SW
Q8006
2SC2412K
R8012 4.7K 1/4W
S809X S809Y
P.CON+12V
R8022 10 1/4W

AUDIO SW IC
IC8001
MM1501XNRE
Vin1 SW1
GND V OUT
Vin2 Vcc

C8001 16V 10 KA
AV_SW1
AUDIO_OUT_L
SW_AUDIO_OUT_L
L8001 100uH 0305
P.CON+12V
C8012 0.1 B
C8013 16V 100 YK
C8006 16V 10 KA

AUDIO SW IC
IC8002
MM1501XNRE
Vin1 SW1
GND V OUT
Vin2 Vcc

C8009 16V 10 KA
AUDIO_OUT_R
AV_SW1
SW_AUDIO_OUT_R
L8003 100uH 0305
P.CON+12V
C8007 16V 10 KA
C8014 0.1 B
C8015 16V 100 KA
AT+5V
P.CON+5V_E

C8090 0.1 F
C8002 16V 220 YK
C8005 50V 2.2 KA
C8070 820P CH
C8081 100P CH
R8051 12K
R8054 8.2K
R8056 3.9K
R8023 10K
R8049 10K
C8004 16V 22 KA
W851
29
R8020 4.7K
C8023 50V 2.2 NA
R8024 100K 1/4W
R8027 1K
R8021 4.7K
C8022 50V 2.2 NA
R8025 100K 1/4W
A_GND
MIXER IC
IC8004
NJM4580M(TE1)
VCC
30
C8077 820P CH
C8003 16V 22 KA
W850
C8064 820P CH
R8047 1K
C8065 10V 33 KA
R8026 10K
R8048 10K
R8050 12K
R8052 8.2K
R8053 3.9K
C8025 820P CH
C8079 100P CH
C8102 50V 2.2 KA

DVD_A_OUT_L
DVD_A_OUT_R

TO SOUND AMP/SURROUND
SW_AUDIO_OUT_L
SW_AUDIO_OUT_R

TO IN/OUT
SW_AUDIO_OUT_L
SW_AUDIO_OUT_R
ZERO
SPDIF-134
P.CON+5V_E

TO DIGITAL COMB FILTER
DVD_Y/C-C
DVD_VIDEO

TO CHROMA/IF
DVD_Y/C-Y

FROM/TO MICON
TX
RX
DVD_RESET
AV_SW1

FROM/TO TV POWER
GND

FROM REGULATOR1
P.CON+3.3V
P.CON+5V_D
P.CON+12V
P.CON+9V_DH
AT+5V

TO Y/C/AUDIO/HEAD AMP
DVD_VIDEO

FROM/TO HI-FI/DEMODULATOR
DVD_A_OUT_L
DVD_A_OUT_R
AUDIO_OUT_L
AUDIO_OUT_R

PCB010
VMC293

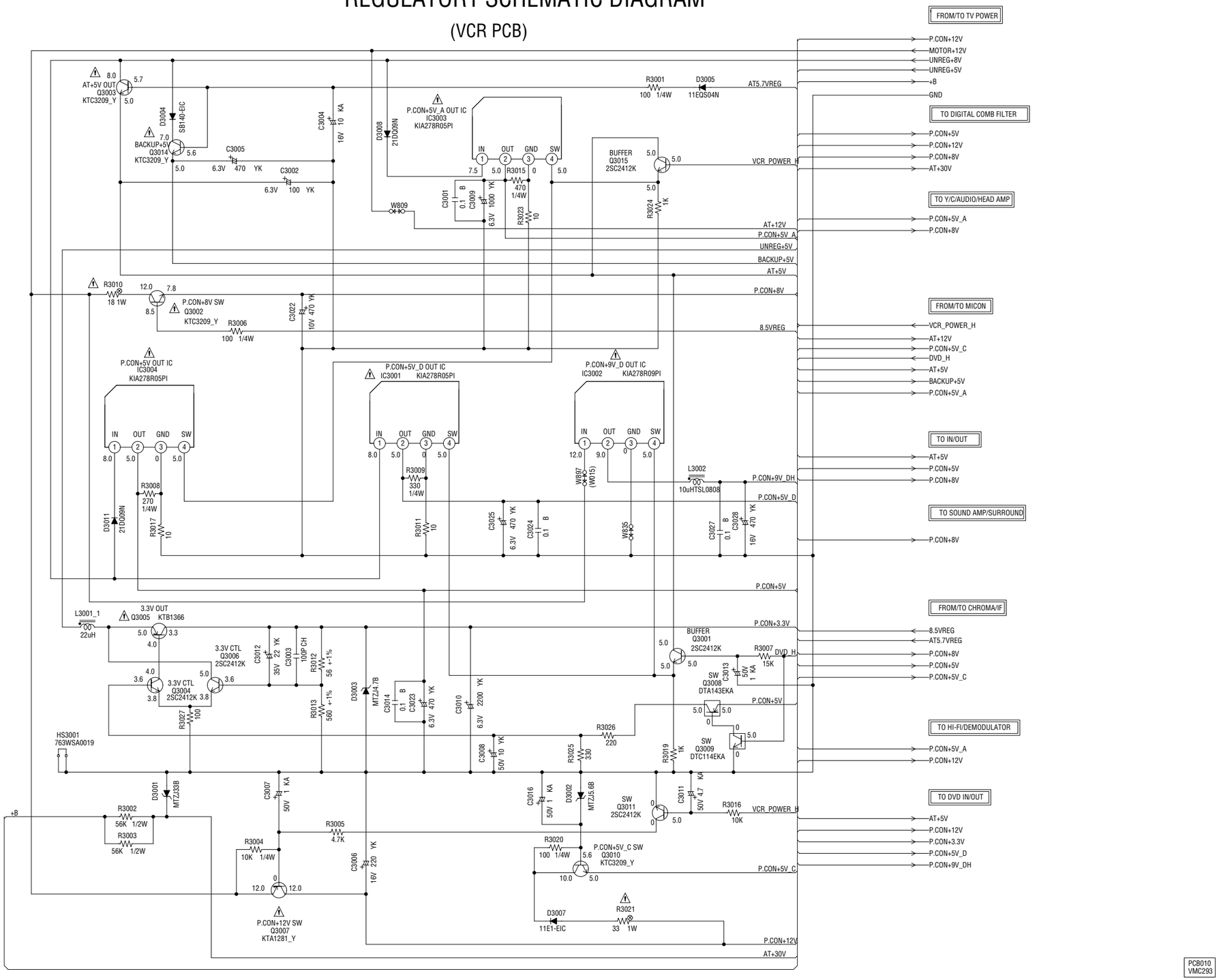
CAUTION: DIGITAL TRANSISTOR

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

# REGULATOR1 SCHEMATIC DIAGRAM

## (VCR PCB)



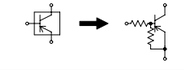

NOTE:THE DC VOLTAGE EACH PART WAS MEASURED WITH THE DIGITAL TESTER DURING PLAYBACK.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

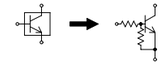
ATTENTION:LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY.USE ONES DESCRIBED IN PARTS LIST ONLY 。

CAUTION: DIGITAL TRANSISTOR

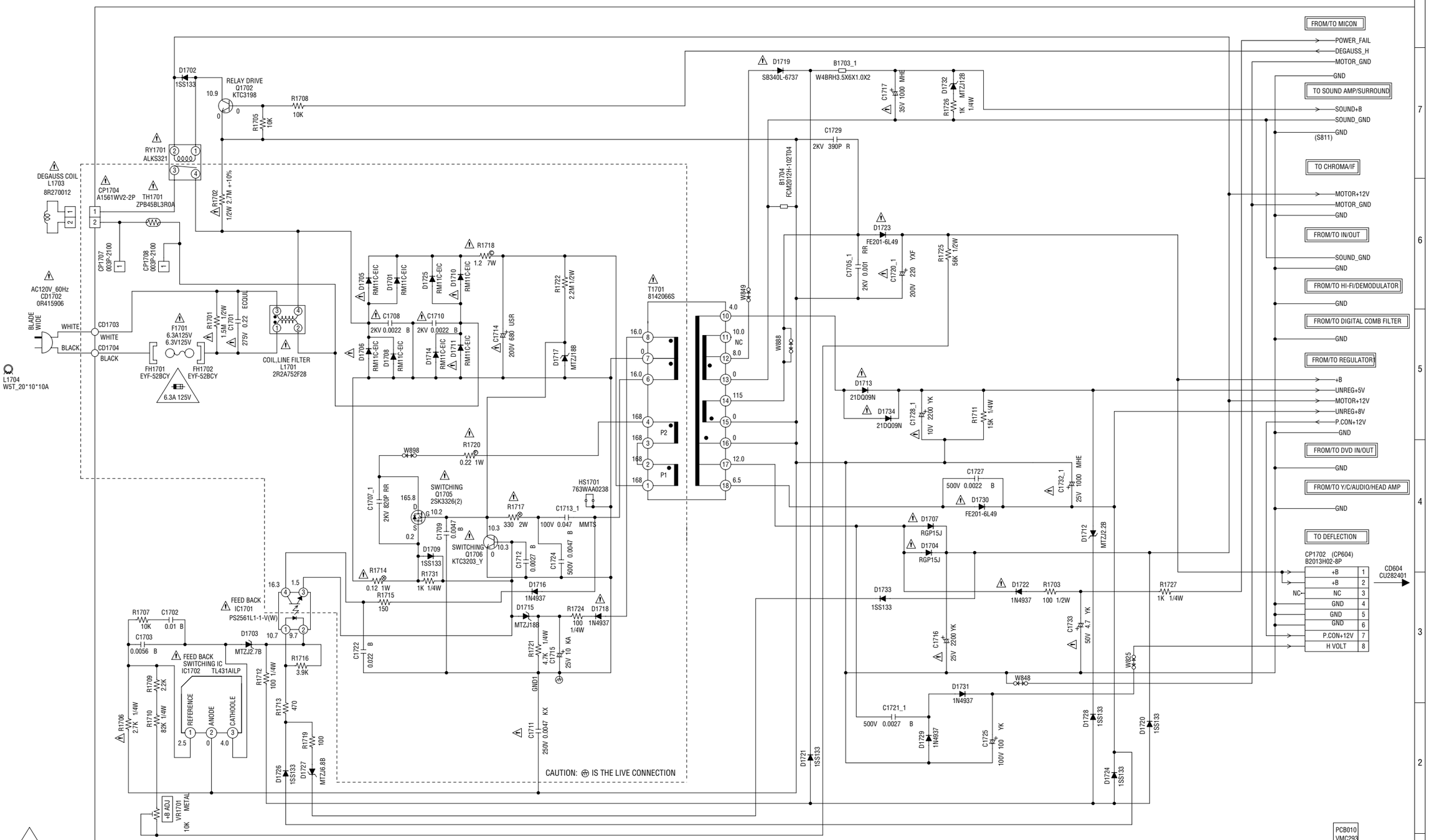


CAUTION: DIGITAL TRANSISTOR



# TV POWER SCHEMATIC DIAGRAM

(VCR PCB)




6.3A 125V

**CAUTION:** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V (F1701)

**ATTENTION:** POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V (F1701)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

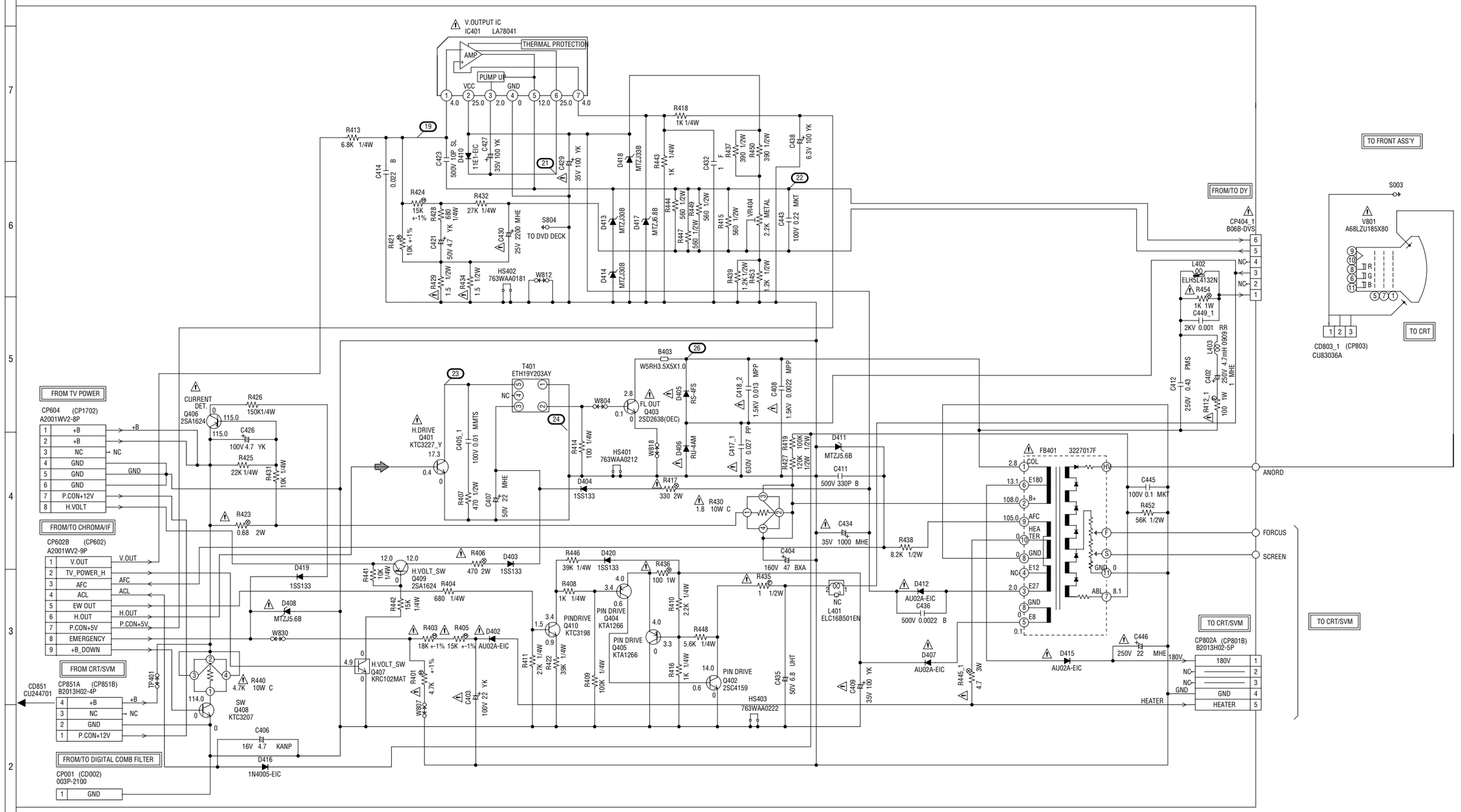
**ATTENTION:** LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

# DEFLECTION SCHEMATIC DIAGRAM

## (DEFLECTION PCB)




NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP
IS NON POLAR ONE.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

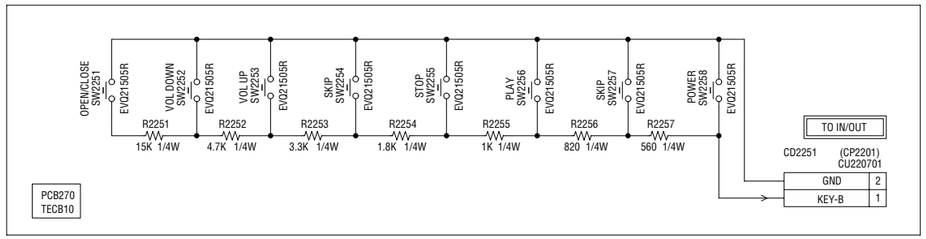
**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY 。

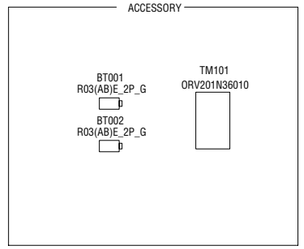
**ATTENTION**: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

CAUTION: DIGITAL TRANSISTOR

# OPERATION SCHEMATIC DIAGRAM

## (OPERATION PCB)



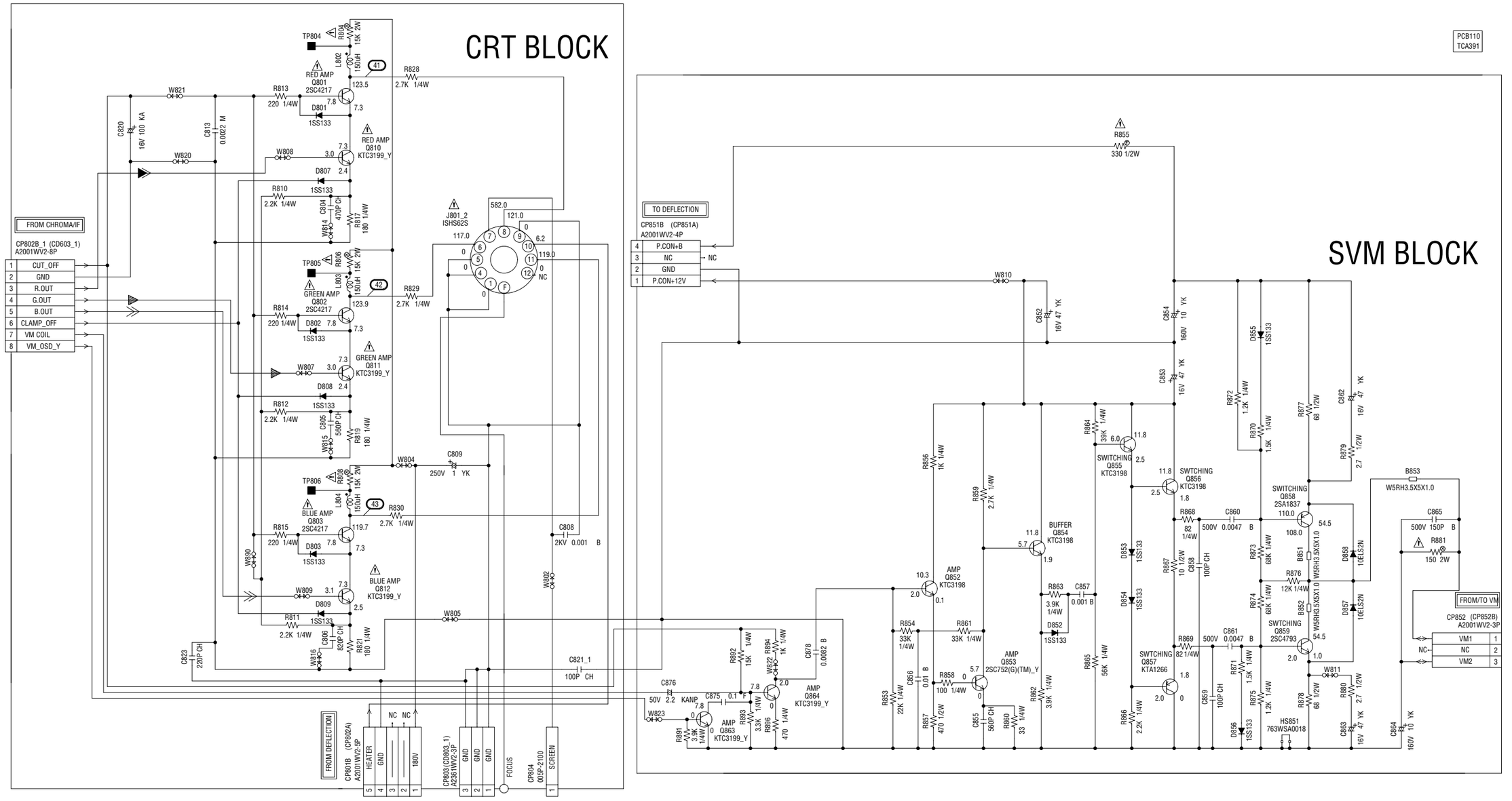

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

# CRT/SVM SCHEMATIC DIAGRAM(CRT PCB)

## CRT BLOCK

## SVM BLOCK




NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR.
THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

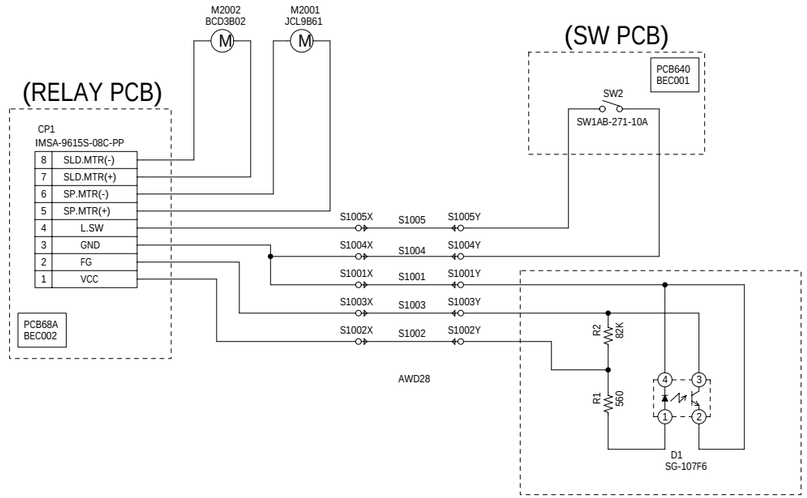
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY. USE ONES DESCRIBED IN PARTS LIST ONLY 。

**ATTENTION**: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

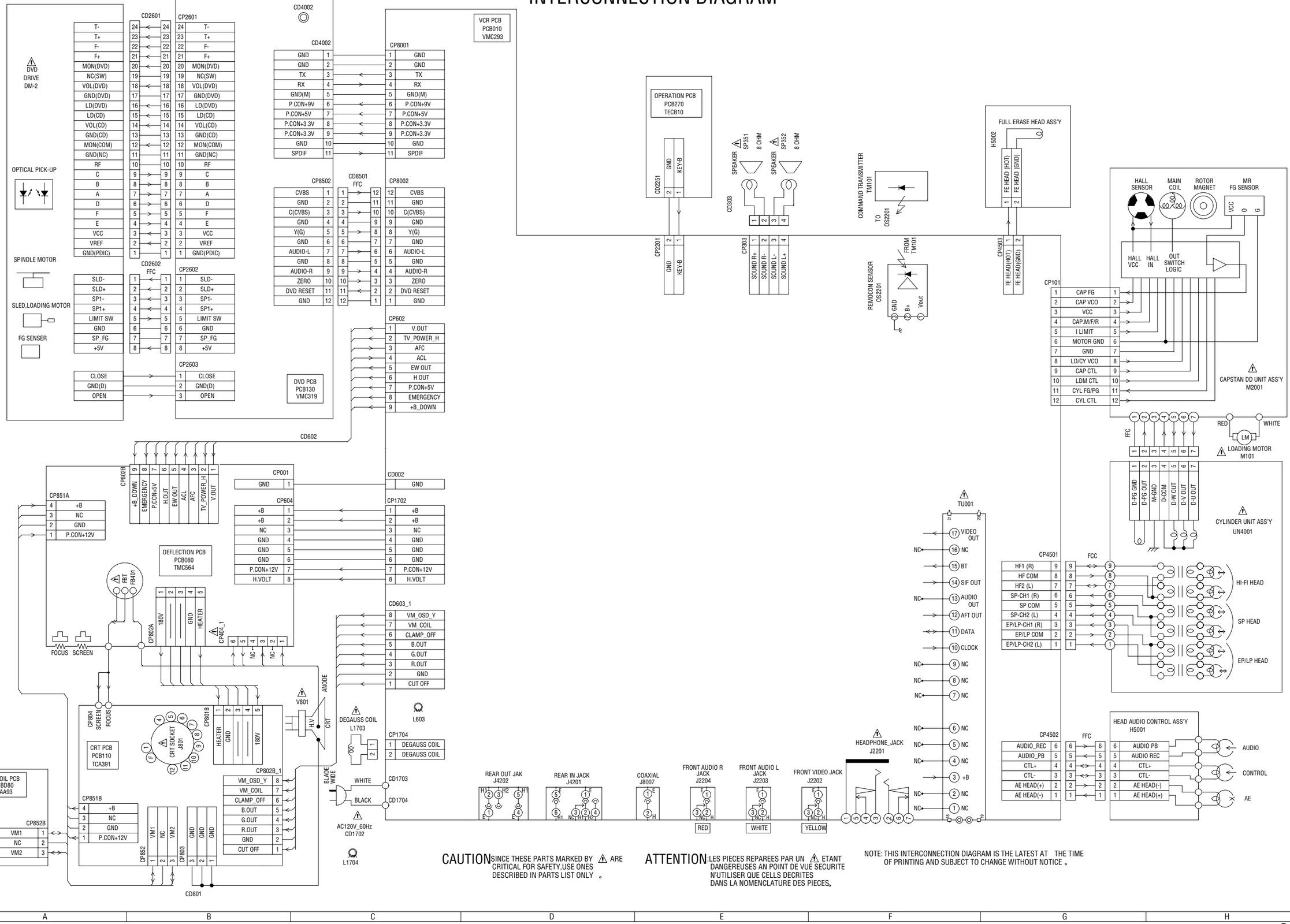
# RELAY/SW/FG SCHEMATIC DIAGRAM




NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE。

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

# INTERCONNECTION DIAGRAM




**CAUTION** SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED IN PARTS LIST ONLY 。

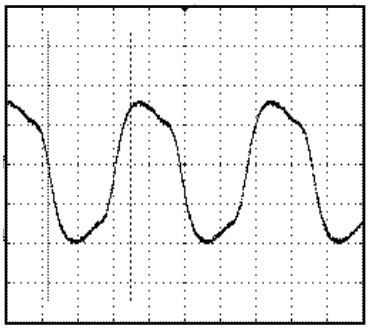
**ATTENTION** :LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES。

NOTE: THIS INTERCONNECTION DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE 。

# WAVEFORMS

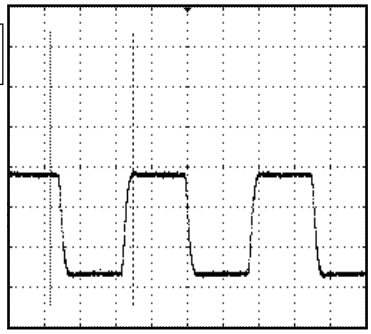
## MPEG/MICON

10ns
100mV



①

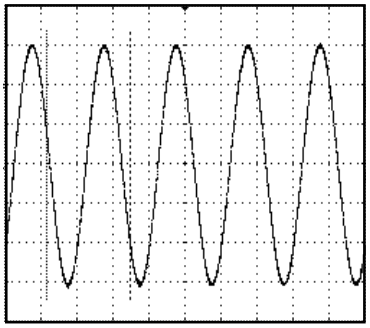
200ns
20mV



②

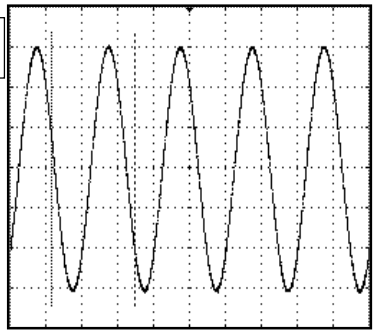
## AUDIO/VIDEO

500µs
100mV



⑥

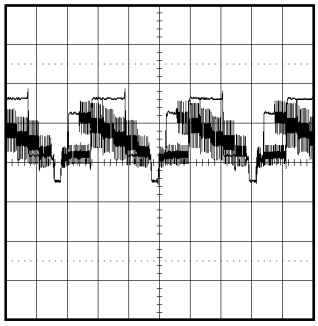
500µs
100mV



⑦

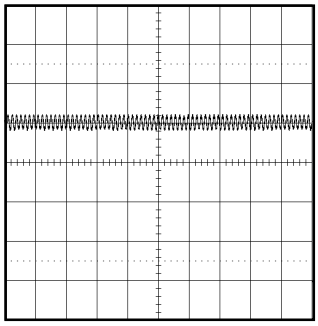
## Y/C/AUDIO/HEAD AMP

20µs
1.0V



⑪

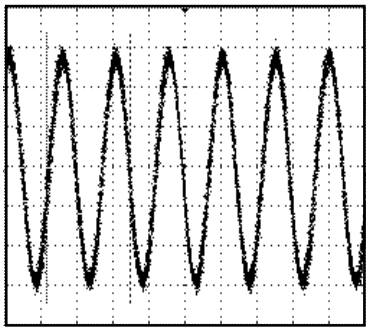
2µs
1.0V



⑫

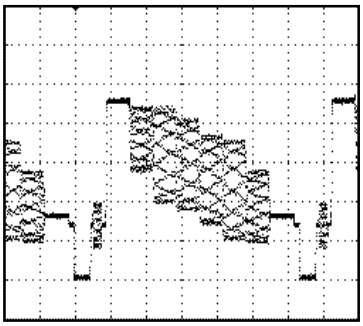
## MEMORY

5ns
20mV



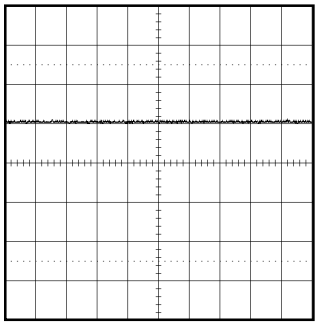
③

10µs
200mV



⑧

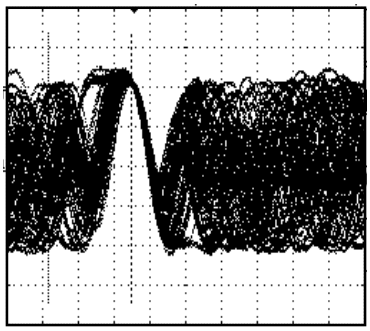
1ms
1.0V



⑬

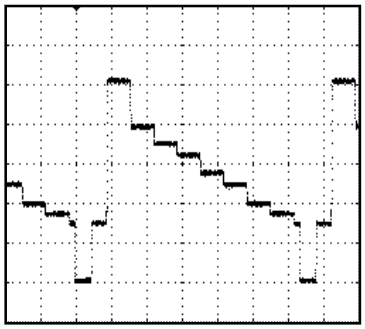
## RF AMP/DSP

200ns
20mV



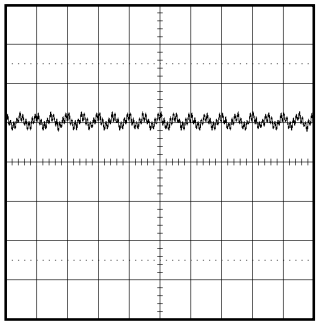
④

10µs
200mV



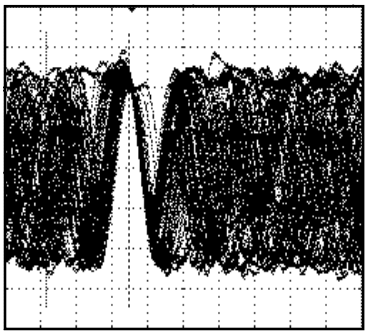
⑨

5ms
2.0V



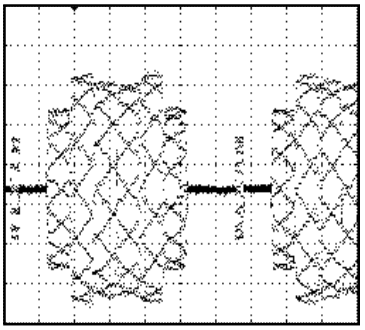
⑭

200ns
10mV



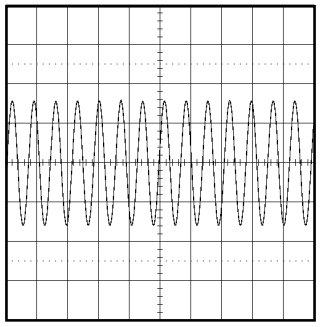
⑤

10µs
100mV



⑩

20µs
20V



⑮

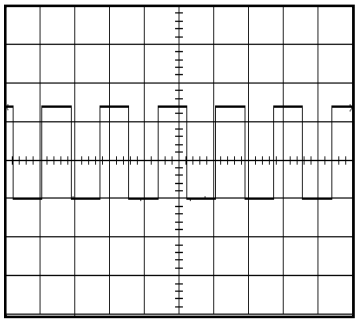
**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# WAVEFORMS

## MICON

20ms
2.0V

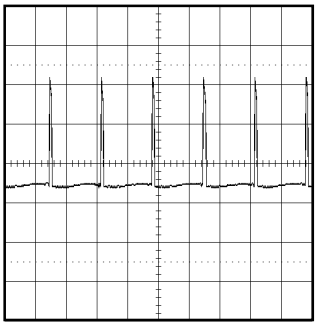
16



## DEFLECTION

10ms
10V

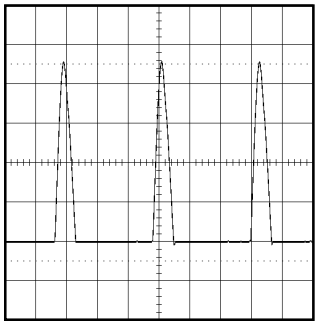
21



## DEFLECTION

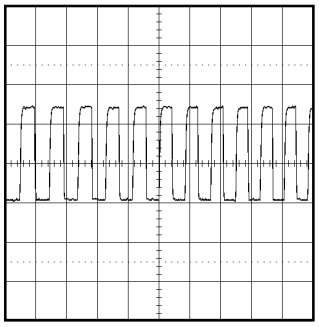
20µs
200V

26



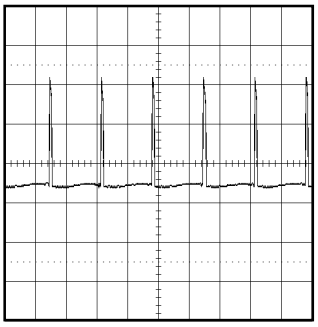
1ms
2.0V

17



10ms
10V

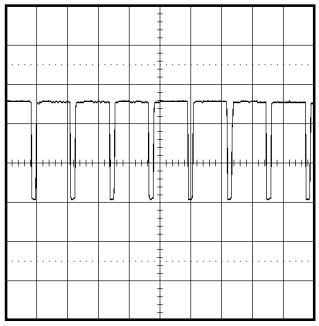
22



## MICON

50µs
2.0V

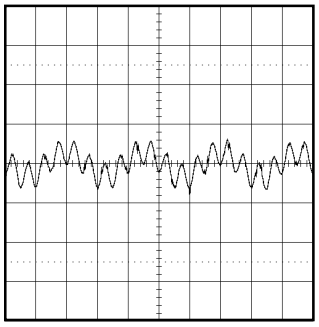
27



## SOUND AMP/SURROUND

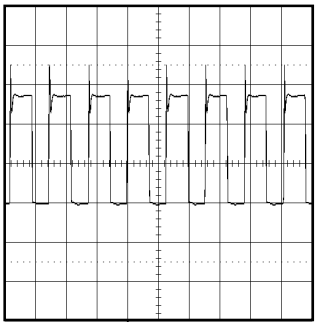
1ms
200mV

18



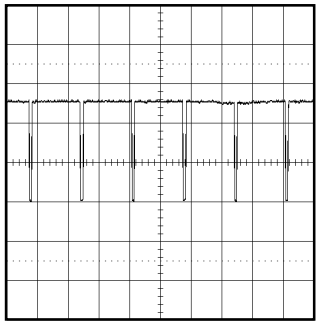
50µs
10V

23



10ms
2.0V

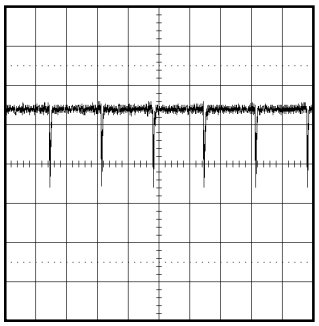
28



## DEFLECTION

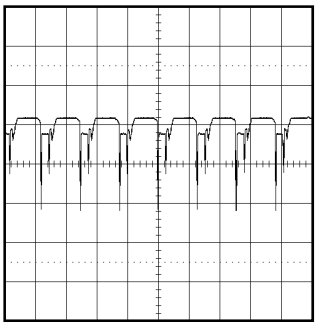
10ms
0.5V

19



50µs
5.0V

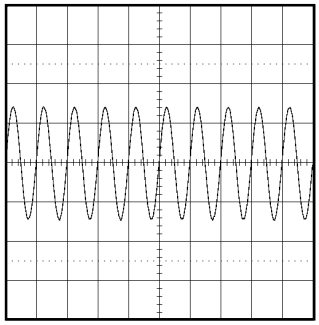
24



## DVD IN/OUT

1ms
2.0V

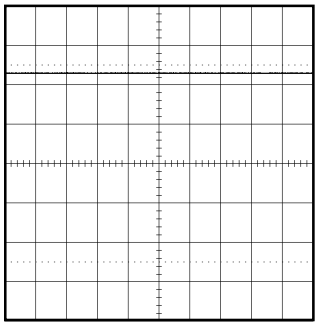
29



## HI-FI/DEMODULATOR

1ms
1.0V

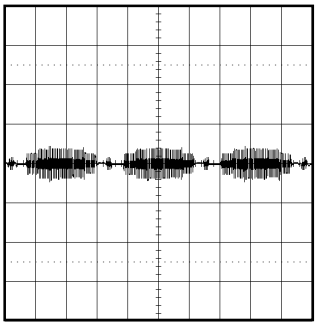
20



## CHROMA/IF

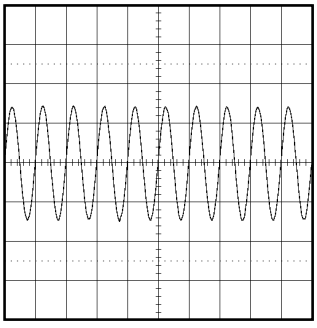
20µs
0.5V

25



1ms
2.0V

30



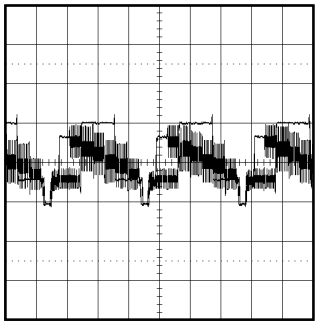
**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# WAVEFORMS

## DIGITAL COMB FILTER

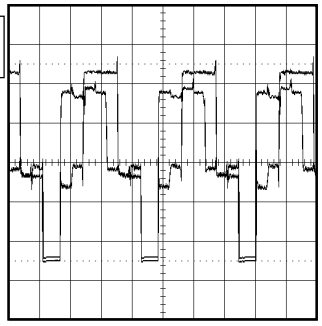
20µs
0.5V

31



20µs
1.0V

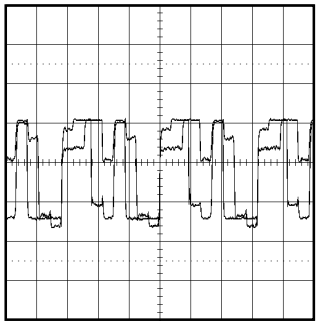
36



## CRT/SVM

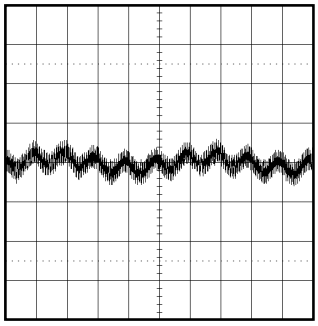
20µs
50V

41



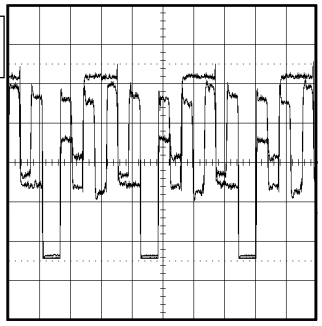
0.5ms
0.5V

32



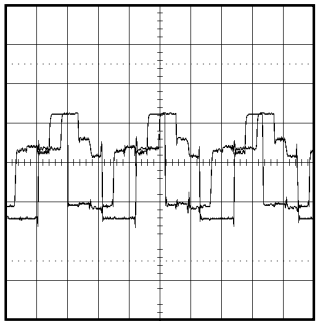
20µs
1.0V

37



20µs
50V

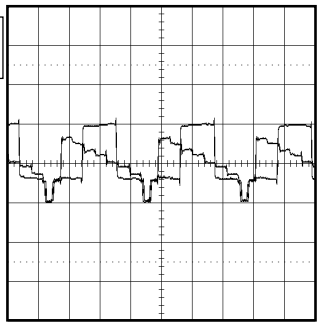
42



## CHROMA/IF

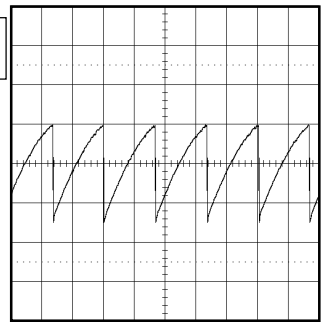
20µs
0.5V

33



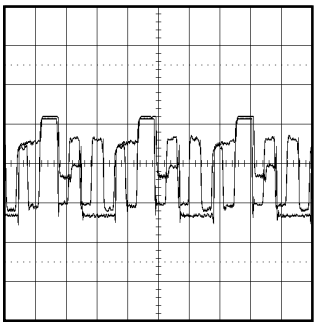
10ms
1.0V

38



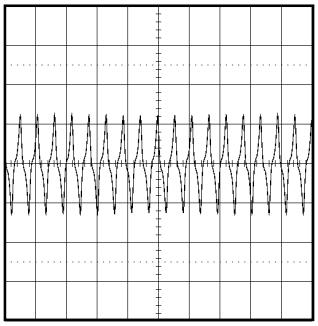
20µs
50V

43



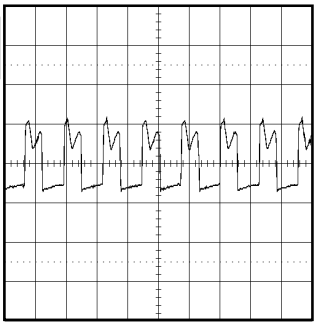
0.5µs
100mV

34



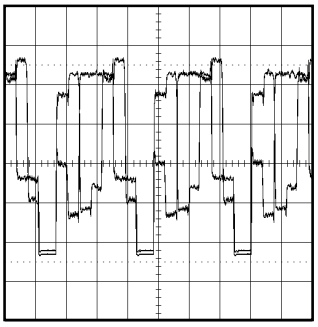
50µs
0.5V

39



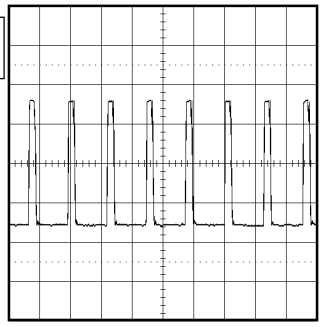
20µs
1.0V

35



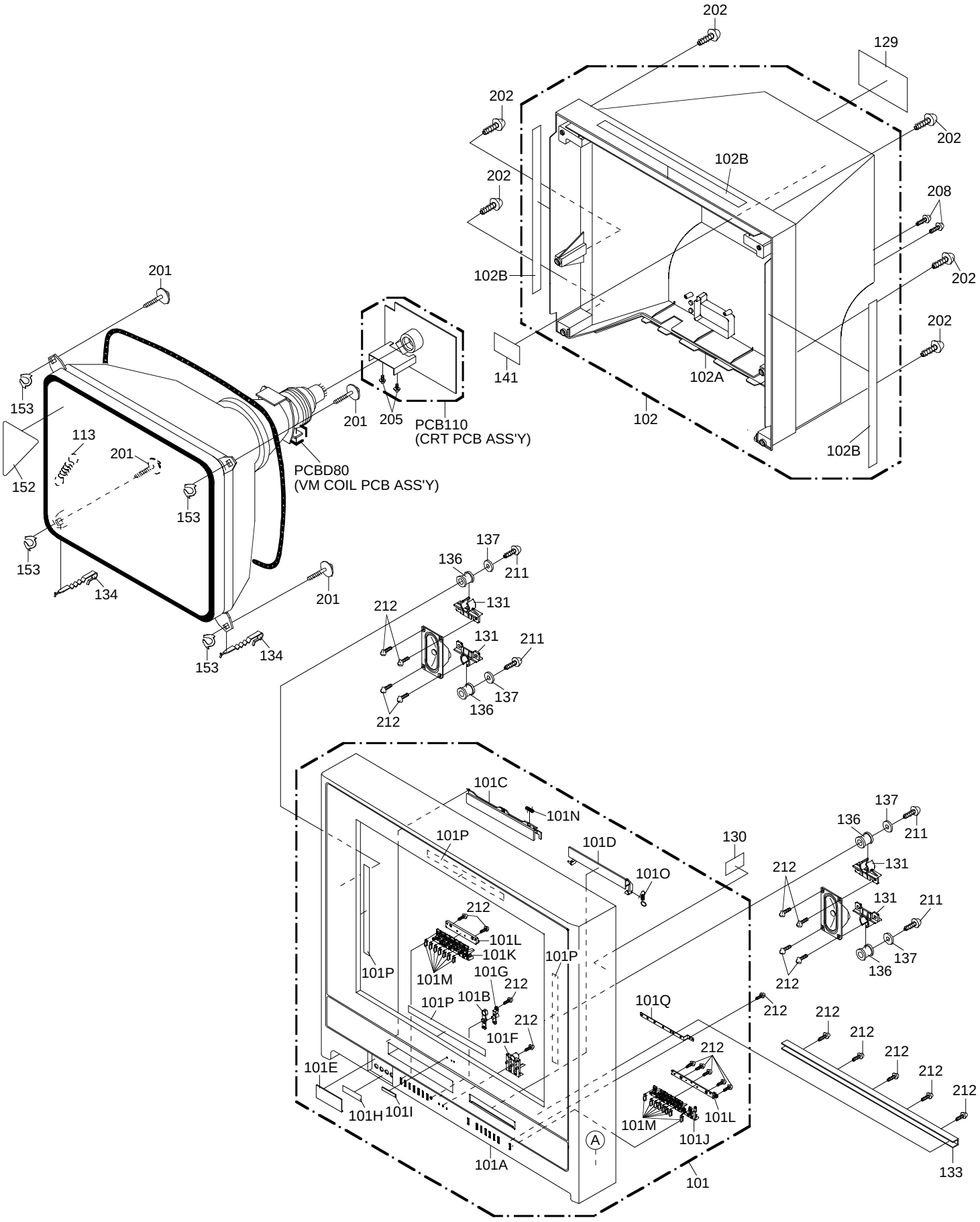
50µs
2.0V

40

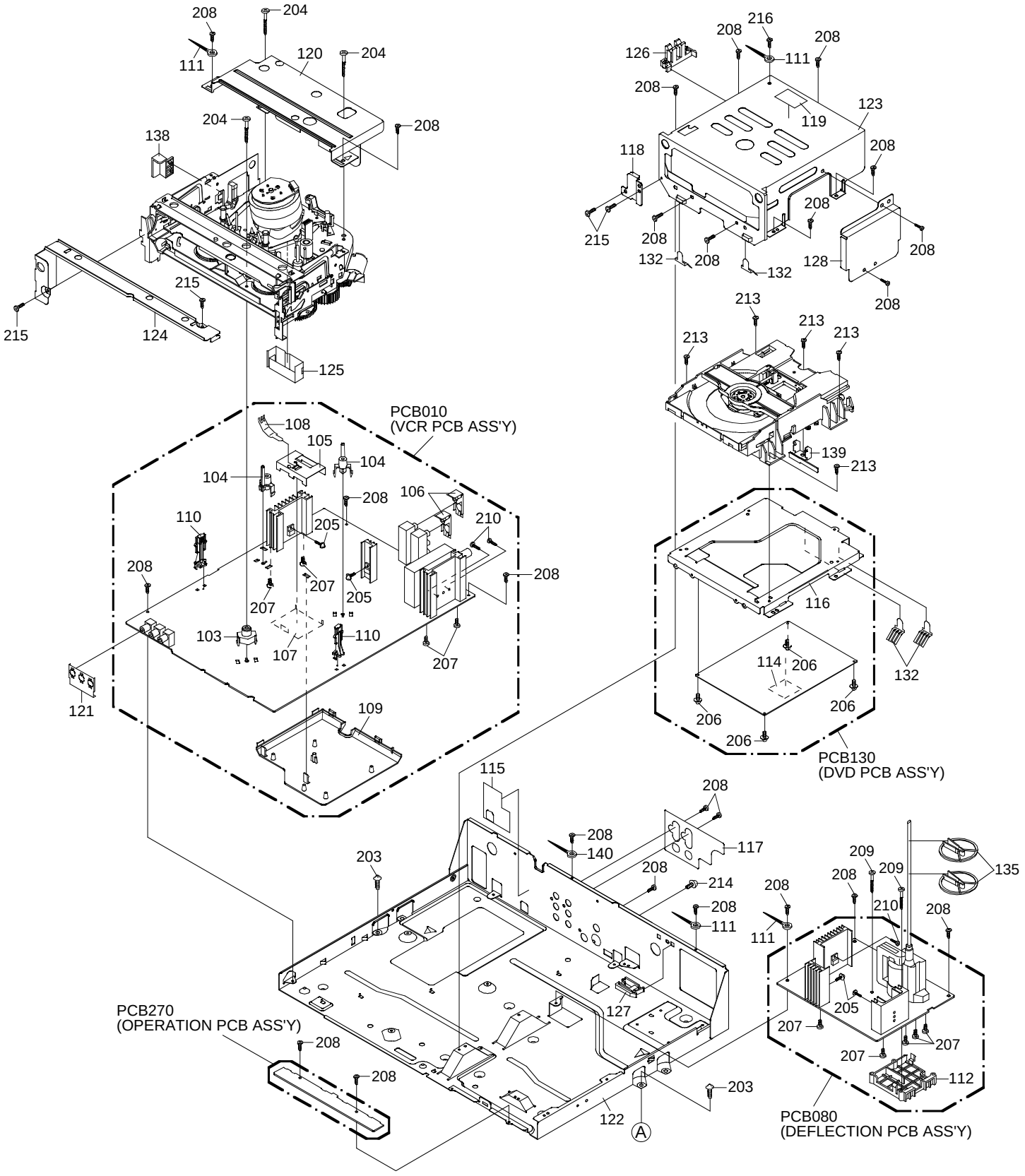


**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

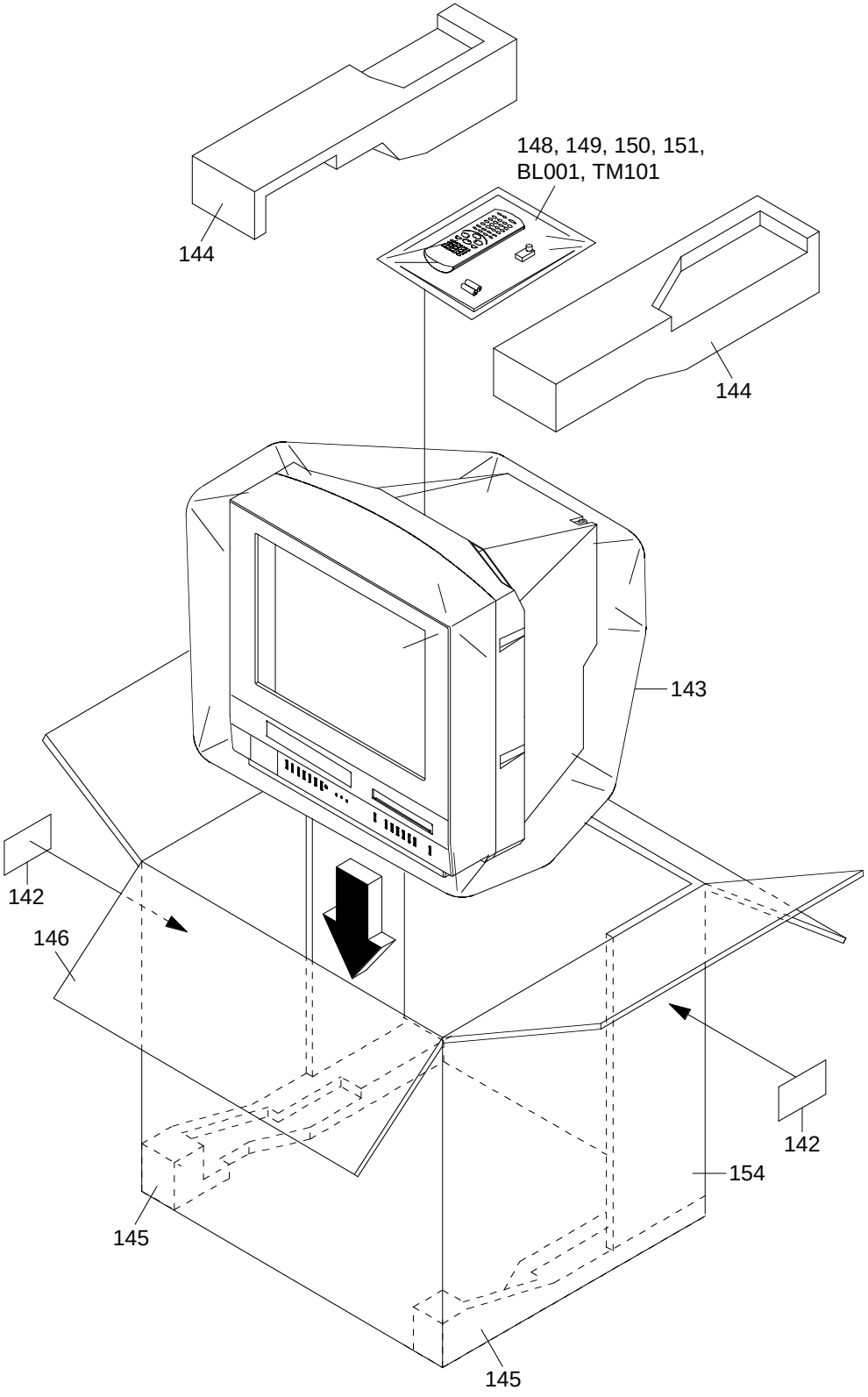
# MECHANICAL EXPLODED VIEW



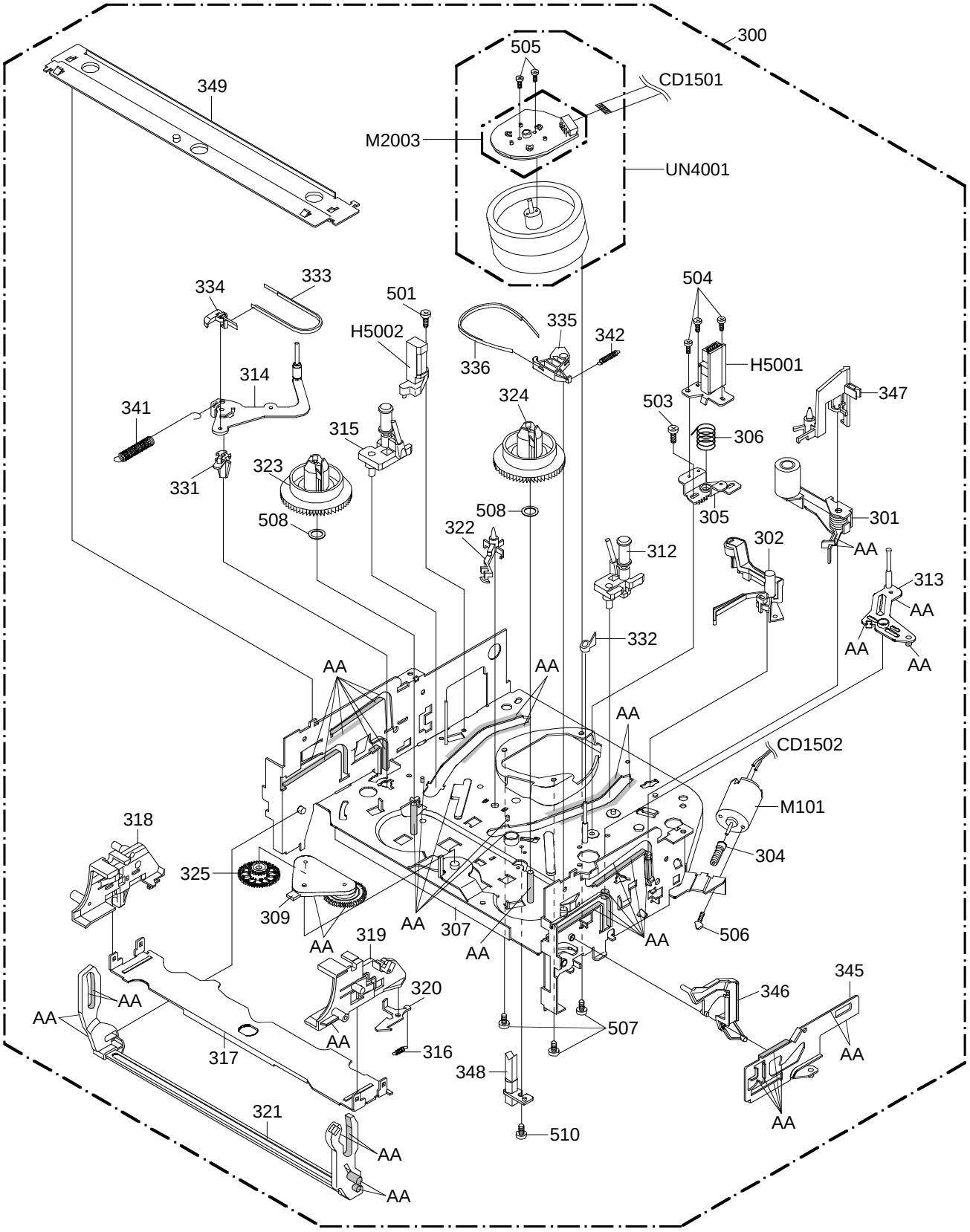
# MECHANICAL EXPLODED VIEW



# MECHANICAL EXPLODED VIEW
# (PACKING DIAGRAM)



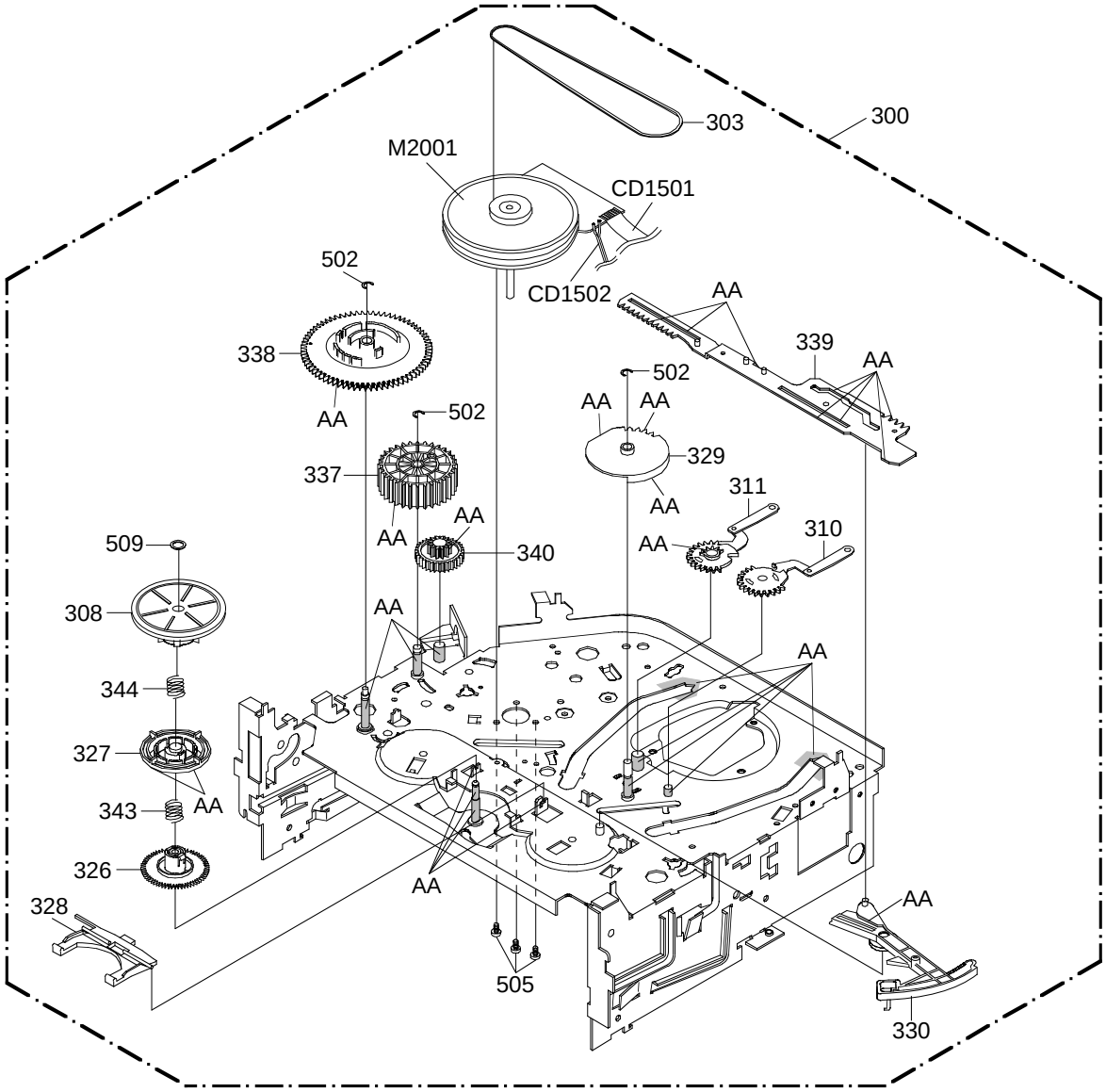
# CHASSIS EXPLODED VIEW (TOP VIEW)




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

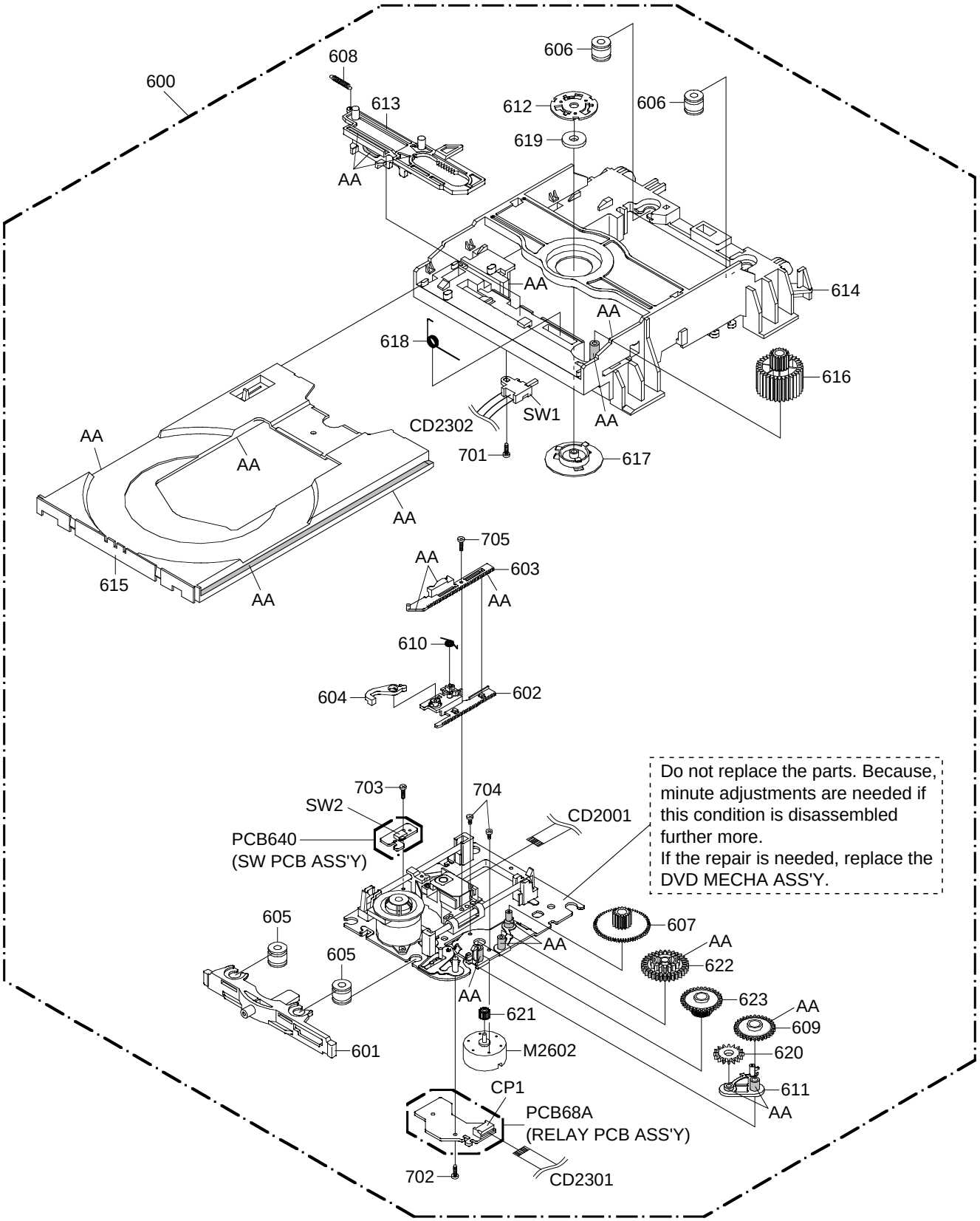
# CHASSIS EXPLODED VIEW (BOTTOM VIEW)




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

# DVD DECK EXPLODED VIEW




| CLASS | MARK |
|---|---|
| GREASE | AA |

**NOTE:** Applying positions AA for the grease are displayed for this section.
Check if the correct grease is applied for each position.

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description |
|---|---|---|---|
| 101 | AE003214 | 7A701A046A | FRONT CABI ASS'Y |
| 101A | AE003215 | 701WPJC535 | CABINET,FRONT |
| 101B | AE003101 | 711WPA0200 | PLATE,FRONT |
| 101C | AE003216 | 712WPJB978 | FLAT,FLAP |
| 101D | AE003217 | 712WPJB983 | FLAP,DVD |
| 101E | AE003218 | 712WPJB984 | DOOR |
| 101F | AE003219 | 713WPA0315 | GLASS,LED |
| 101G | AE003220 | 713WPA0316 | GUIDE,REMOCON |
| 101H | AE003221 | 723549A031 | AV LABEL |
| 101I | AD302321 | 7235490037 | BADGE,BRAND |
| 101J | AE003222 | 735WPAA645 | BUTTON,FRAME-DVD |
| 101K | AE003223 | 735WPAA646 | BUTTON,FRAME-VCR |
| 101L | AE003106 | 735WPA0805 | STOPPER,BUTTON |
| 101M | AE003109 | 735WPEA001 | BUTTON,CAP |
| 101N | AD301686 | 743WKA0037 | SPRING,FLAP |
| 101O | AE001324 | 742WKA0001 | SPRING,DVD-FLAP |
| 101P | AE003110 | 800WQ0A052 | FELT SHEET |
| 101Q | AE003462 | 752WSAA068 | SHIELD BUTTON,DVD |
| 102 | AE003224 | 7A702A010A | BACK CABI ASS'Y |
| 102A | AD302257 | 702WPA0982 | CABINET,BACK |
| 102B | AE003020 | 800WQ0A050 | FELT SHEET |
| 103 | BZ710577 | 701WPA0686 | HOLDER,DECK |
| 104 | BZ710658 | 701WPA0751 | HOLDER,DECK |
| 105 | BZ710466 | 752WSA0230 | SHIELD,CASE HEAD AMP |
| 106 | BZ710659 | 752WSA0290 | SHIELD,COMPO |
| 107 | AD301956 | 752WSA0308 | SHIELD,COVER HEAD AMP |
| 108 | BZ710331 | 753WUAA006 | SPRING,EARTH HEAD AMP |
| 109 | AD301957 | 755WPA0035 | COVER,PCB |
| 110 | BZ710498 | 85OP700038 | HOLDER,END SENSOR |
| 111 | AD300758 | 899EFBA001 | WIRING CLIP |
| 112 | BZ710459 | 761WPA0223 | HOLDER,FBT |
| 113 | AD300759 | 741WUA0021 | SPRING,EARTH |
| 114 | AE000754 | 7232020748 | SHEET,IC |
| 115 | AE000157 | 724WNA0009 | SHEET,PVC |
| 116 | AE003114 | 761WSA0137 | ANGLE,DECK |
| 117 | AE000733 | 7230007691 | SHEET,JACK |
| 118 | AE000162 | 752WSA0343 | HOLDER,VCR |
| 119 | AD301688 | 7260000341 | SHEET,CAUTION |
| 120 | AE000160 | 752WSA0331 | SHIELD,COVER DECK |
| 121 | BZ710671 | 752WSA0292 | SHIELD,AV JACK |
| 122 | AE003463 | 752WSAA067 | PLATE,BOTTOM |
| 123 | AD301962 | 752WSA0323 | DVD,TOP |
| 124 | AD301964 | 752WSA0324 | VCR,TOP |
| 125 | AD301966 | 752WSA0327 | SHIELD,COVER FPC |
| 126 | BZ710694 | 774WPA0002 | HOLDER,WIRE |
| 127 | AE000164 | 774WPA0005 | HOLDER,WIRE-2 |
| 128 | AE000161 | 752WSA0337 | SHIELD,DVD |
| 129 | AE003225 | 722549A317 | SHEET,RATING |
| 130 | AD300007 | 7230006755 | SHEET,CAUTION |
| 131 | AE003226 | 761WPAA090 | HOLDER,SPEAKER |
| 132 | AD301574 | 744WUA0013 | SPRING,EARTH |
| 133 | BZ710686 | 752WSA0288 | ANGLE,FRONT |
| 134 | BZ710259 | 762WPA0011 | HOLDER,CRT WIRE |
| 135 | BZ710260 | 899HV3T000 | HOLDER,ANODE WIRE |
| 136 | AD300518 | 801WR00001 | DAMPER,SPEAKER |
| 137 | AD300519 | 82A40B0104 | FLAT WASHER |
| 138 | BZ710618 | 755WPAA012 | PLATE,COVER LIGHT (L) |
| 139 | AE002846 | 752WSA0384 | ANGLE,DVD 2 |
| 140 | BZ710039 | 8995034000 | CORD CLIP UL CO. |
| 141 | AE003227 | 726000A058 | SHEET,CRT NO. |
| 142 | AE003228 | 723000C485 | SHEET,BAR CODE |
| 143 | AE000636 | 791WHA0102 | LAMIFILM,BAG |
| 144 | AE003229 | 792WHA0526 | PACKAGE,TOP |
| 145 | AE003230 | 792WHA0527 | PACKAGE,BOTTOM |
| 146 | AE003231 | 793WCDC096 | GIFT BOX |
| 147 | AE003120 | A5L0024975 | INSTRUCTION BOOK KIT |
| 148 | AE000060 | JB5UD300 | POLYBAG,INSTRUCTION(RED CAUTION) |
| 149 | AE001184 | J5F10129A | INFORMATION SHEET |

# MECHANICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| 150 | AE003121 | J5L00201A | INSTRUCTION BOOK | |
| 151 | AD302404 | J5500817 | REGISTRATION CARD | |
| 152 | AE004054 | 723000C570 | POP LABEL | |
| 153 | AE004055 | 769WSA0016 | WASHER CRT T=0.5 | |
| 154 | AE001329 | 795WCA0670 | PAD | 474x1200 |
| 201 | AD302384 | 8141H60D54 | SCREW,TAP TITE(P) GW22 | 6x45 |
| 202 | BZ710036 | 8117540B04 | SCREW,TAPPING(B0) TRUSS | 4x20 |
| 203 | BZ710320 | 8117540804 | SCREW,TAPPING(B0) TRUSS | 4x8 |
| 204 | BZ710582 | 8109130B94 | SCREW,TAP TITE(B) R PAN | 3x29 |
| 205 | BZ710239 | 8109I30A04 | SCREW,TAP TITE(B) WH7 | 3x10 |
| 206 | BZ710562 | 8109I30804 | SCREW,TAP TITE(B) WH7 | 3x8 |
| 207 | BZ710019 | 8109630802 | SCREW,TAP TITE(B) BRAZIER | 3x8 |
| 208 | BZ710678 | 8109230804 | SCREW,TAP TITE(B) BIND | 3x8 |
| 209 | BZ710409 | 8107630B04 | SCREW,TAP TITE(S) BRAZIER | 3x20 |
| 210 | BZ710018 | 8107630804 | SCREW,TAP TITE(S) BRAZIER | 3x8 |
| 211 | BZ710035 | 8117540A64 | SCREW,TAPPING(B0) TRUSS | 4x16 |
| 212 | BZ710030 | 8110630804 | SCREW,TAP TITE(P) BRAZIER | 3x8 |
| 213 | AE002618 | 810F130804 | SEMS(F) | 3x8 |
| 214 | AD301968 | 8107230404 | SCREW,TAP TITE(S) BIND | 3x4 |
| 215 | BZ710299 | 8107230604 | SCREW,TAP TITE(S) BIND | 3x6 |
| 216 | BZ710337 | 8107930604 | SCREW,CUP(S) | 3x6 |

# CHASSIS REPLACEMENT PARTS LIST

| | Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|---|
| | 300 | AE003122 | A5J9027420A | DECK ASS'Y | A5J9027420A |
| | 301 | AE002754 | 85OA400240 | PINCH ROLLER BLOCK (VA) | |
| | 302 | BZ710682 | 85OA500026 | AHC ASS'Y | |
| | 303 | BZ710193 | 85OP200290 | BELT,CAPSTAN (S) | |
| | 304 | BZ710515 | 85OP600581 | WORM | |
| | 305 | BZ710094 | 85OP500083 | BASE,AC HEAD | |
| | 306 | BZ710112 | 85OP800324 | SPRING,AC HEAD | |
| | 307 | BZ710516 | 85OA000459 | MAIN CHASSIS ASS'Y | |
| | 308 | BZ710517 | 85OA200089 | CLUTCH ASS'Y | |
| | 309 | BZ710518 | 85OA200090 | ARM IDLER ASS'Y | |
| | 310 | BZ710519 | 85OA300065 | LOADING ARM S UNIT | |
| | 311 | BZ710520 | 85OA300066 | LOADING ARM T UNIT | |
| | 312 | BZ710521 | 85OA400223 | INCLINED BASE T UINT 3S | |
| | 313 | BZ710522 | 85OA400232 | P5 ARM ASS'Y 2 | |
| | 314 | BZ710650 | 85OA400235 | TENSION ARM ASS'Y 2 | |
| | 315 | BZ710524 | 85OA400231 | INCLINED BASE S UNIT | |
| | 316 | AE000442 | 85OP800367 | SPRING,LOCKER | |
| | 317 | BZ710526 | 85OP900736 | CASS,HOLDER | |
| | 318 | BZ710527 | 85OP900748 | CASS,SIDE L | |
| | 319 | BZ710528 | 85OP900749 | CASS,SIDE R | |
| | 320 | BZ710529 | 85OP900739 | LOCKER,R | |
| | 321 | BZ710530 | 85OA900228 | LINK UNIT | |
| | 322 | BZ710531 | 85OP000496 | POST,CASS GUIDE | |
| | 323 | BZ710532 | 85OP200316 | REEL,S (S) | |
| | 324 | BZ710533 | 85OP200317 | REEL,T (S) | |
| | 325 | BZ710534 | 85OP200308 | GEAR,IDLER | |
| | 326 | BZ710535 | 85OP200311 | GEAR,CLUTCH | |
| | 327 | BZ710536 | 85OP200312 | GEAR,COUPLING | |
| | 328 | BZ710537 | 85OP200313 | LEVER,CLUTCH | |
| | 329 | BZ710538 | 85OP300194 | GEAR,MAIN LOADING | |
| | 330 | BZ710092 | 85OP400490 | LEVER,TENSION | |
| | 331 | BZ710093 | 85OP400492 | HOLDER,TENSION | |
| | 332 | BZ710366 | 85OP400520 | CAP.P4 | |
| | 333 | BZ710762 | 85OP400542 | BAND,TENSION | |
| | 334 | BZ710540 | 85OP400533 | CONNECT,TENSION | |
| | 335 | BZ710541 | 85OP600573 | ARM,BRAKE T | |
| | 336 | BZ710763 | 85OP600584 | BAND,BRAKE T | |
| | 337 | BZ710543 | 85OP600577 | CAM,PINCH ROLLER | |
| | 338 | BZ710544 | 85OP600578 | CAM,MAIN | |
| | 339 | BZ710545 | 85OP600579 | ROD,MAIN | |
| | 340 | BZ710546 | 85OP600582 | GEAR,JOINT | |
| | 341 | BZ710110 | 85OP800322 | SPRING,TENSION | |
| | 342 | BZ710547 | 85OP800360 | SPRING,BRAKE T | |
| | 343 | BZ710548 | 85OP800355 | SPRING,COUPLING | |
| | 344 | BZ710549 | 85OP800356 | SPRING,RING | |
| | 345 | BZ710565 | 85OP900750 | LEVER,LINK 2 | |
| | 346 | BZ710551 | 85OP900744 | LEVER,FLAP | |
| | 347 | BZ710552 | 85OP900745 | CASS,OPENER | |
| | 348 | BZ710106 | 85OP700035 | REFLECTOR,LED | |
| | 349 | BZ710514 | 85OP900746 | BRACKET,TOP 3V | |
| | 501 | BZ710049 | 8107226804 | SCREW,TAP TITE(S) BIND | 2.6x8 |
| | 502 | BZ710058 | 83ETW30000 | E-RING | 3.0 |
| | 503 | BZ710371 | 8107226404 | SCREW,TAP TITE(S) BIND | 2.6x4 |
| | 504 | BZ710046 | 8102120604 | SCREW,PAN | M2x6 |
| | 505 | BZ710050 | 8109126604 | SCREW,TAP TITE(B) PAN | 2.6x6 |
| | 506 | BZ710553 | 810A130404 | SCREW/WASHER(A) | M3x4 |
| | 507 | BZ710219 | 810A126504 | SCREW/WASHER(A) | M2.6x5 |
| | 508 | BZ710056 | 82Q264713N | POLYSLIDER WASHER | 2.6x4.7xT0.13 |
| | 509 | BZ710054 | 82P184505N | POLYSLIDER WASHER(CUT) | 1.8x4.5xT0.5 |
| | 510 | BZ710017 | 8107226604 | SCREW,TAP TITE(S) BIND | 2.6x6 |
| | CD1501 | BZ614292 | 122H071704 | CORD JUMPER | 2H071704 |
| | CD1502 | AD301953 | 122Y021002 | CORD JUMPER | 2Y021002 |
| | H5001 | AD301675 | 1523Q91003 | HEAD (AUDIO CONTROL) | VTR-1X2RPE22-756 |
| | H5002 | AD301676 | 1543Q02014 | HEAD (FULL ERASE) | VTR-1X2ERS11-154 |
| ⚠ | M101 | BZ710554 | 1596S98001 | MOTOR (LOADING) | MDB2B66 |
| ⚠ | M2001 | AE002696 | 1510S98040 | CAPSTAN DD UNIT | F2QVB33B |
| | M2003 | BZ710657 | 1589S11017 | MICRO MOTOR | I2OAL05 |
| ⚠ | UN4001 | AE003123 | A5J9016500 | CYLINDER UNIT ASS'Y | A5J9016500 |

# DVD DECK REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| 600 | AE003124 | A2D006A650 | DVD MECHA ASS'Y | A2D006A650 |
| 601 | AD301822 | 92P100022A | TRAVERSE HOLDER | |
| 602 | AE002480 | 92P100080A | RACK,FEED 1A | |
| 603 | AE002481 | 92P100081A | RACK,FEED 2A | |
| 604 | AD301825 | 92P100035A | LEVER,RACK FEED | |
| 605 | AD301826 | 92P200006A | INSULATOR(F) | |
| 606 | AD301827 | 92P200007A | INSULATOR(R) | |
| 607 | AD301846 | 92P100029A | GEAR,FEED | |
| 608 | AE001179 | 92P300009A | SPRING,RACK L | |
| 609 | AD301845 | 92P100028A | GEAR,MIDDLE 3 | |
| 610 | AE002482 | 92P300019A | SPRING,RACK FEED 1A | |
| 611 | AE002179 | 92P100040A | ARM,IDLER 2 | |
| 612 | AD301833 | 92P000001A | CLAMPER PLATE | |
| 613 | AD301834 | 92P100019A | RACK,LOADING | |
| 614 | AD301835 | 92P100020A | MAIN FRAME M | |
| 615 | AE001336 | 92P100039A | TRAY | |
| 616 | AD301837 | 92P100023A | GEAR,MAIN | |
| 617 | AE002647 | 92P100082A | CLAMPER 2 | |
| 618 | AD301839 | 92P300002A | SPRING,RACK LOADING | |
| 619 | AD301840 | 92P400002A | MAGNET,CLAMPER | |
| 620 | AD301847 | 92P100030A | GEAR,IDLER | |
| 621 | AD301842 | 92P100025A | GEAR,MOTOR | |
| 622 | AE002180 | 92P100083A | GEAR,MIDDLE 1 | |
| 623 | AD301844 | 92P100027A | GEAR,MIDDLE 2 | |
| 701 | BZ710187 | 8110226804 | SCREW,TAP TITE(P) BIND | 2.6x8 |
| 702 | AD301851 | 8110120604 | SCREW,TAP TITE(P) PAN | 2x6 |
| 703 | AD301852 | 8107220504 | SCREW,TAP TITE(S) BIND | 2x5 |
| 704 | AD301853 | 8140117254 | SCREW,PAN | M1.7x2.5 P3 |
| 705 | AD301913 | 8110220804 | SCREW,TAP TITE(P) BIND | 2x8 |
| CD2001 | AD301855 | 122H0O1901 | CORD JUMPER | 2H0O1901 |
| CD2301 | AD301856 | 122H080701 | CORD JUMPER | 2H080701 |
| CD2302 | AE000148 | 06CH232101 | CORD CONNECTOR | CH232101 |
| CP1 | AD301858 | 069JV80180 | CONNECTOR PCB SIDE | IMSA-9615S-08C-PP-A |
| ⚠ M2602 | AD301861 | 1515S98001 | FEED MOTOR | BCD3B81 |
| PCB640 | AD301862 | A5E601V640 | PCB ASS'Y | BEC001A |
| PCB68A | AD301863 | A5E601V680 | PCB ASS'Y | BEC002A |
| SW1 | AD301866 | 0515S32001 | SWITCH | SSS-23-6 |
| SW2 | AE001158 | 0500101036 | PUSH SWITCH | ESE22MH22 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | | Description |
|---|---|---|---|---|
| | | **RESISTORS** | | |
| ⚠R401 | AD301014 | R4X5T6472F | R,METAL | 4.7K OHM 1/6W |
| ⚠R403 | BZ210105 | R4X5T6183F | R,METAL | 18K OHM 1/6W |
| ⚠R405 | AD300037 | R4X5T6153F | R,METAL | 15K OHM 1/6W |
| ⚠R406 | AE001016 | R3X28A471J | R,METAL OXIDE | 470 OHM 2W |
| ⚠R412 | AE003999 | R63581101J | R,FUSE | 100 OHM 1W |
| ⚠R417 | AD301016 | R3X28A331J | R,METAL OXIDE | 330 OHM 2W |
| ⚠R423 | BZ210149 | R3X18AR68J | R,METAL OXIDE | 0.68 OHM 2W |
| ⚠R429 | BZ210130 | R002T21R5J | RC | 1.5 OHM 1/2W |
| ⚠R430 | AD302205 | R5X34F1R8J | R,CEMENT | 0 1.8 OHM 10W |
| ⚠R434 | BZ210130 | R002T21R5J | RC | 1.5 OHM 1/2W |
| R435 | AD301595 | R65582010J | R,FUSE | 1 OHM 1/2W |
| R436 | BZ210277 | R3X181101J | R,METAL OXIDE | 100 OHM 1W |
| ⚠R440 | AE001017 | R5X34F472J | R,CEMENT | 4.7K OHM 10W |
| ⚠R445 | BZ210071 | R3X28B4R7J | R,METAL OXIDE | 4.7 OHM 3W |
| R449 | AE000145 | R002T2561J | RC | 560 OHM 1/2W |
| ⚠R454 | AE000676 | R3K181102J | R,METAL | 1K OHM 1W |
| ⚠R804 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R806 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R808 | BZ210026 | R3X18A153J | R,METAL OXIDE | 15K OHM 2W |
| ⚠R855 | AD301019 | R65582331J | R,FUSE | 330 OHM 1/2W |
| ⚠R881 | AD301344 | R3X18A151J | R,METAL OXIDE | 150 OHM 2W |
| ⚠R1701 | BZ210206 | R002T2155J | RC | 1.5M OHM 1/2W |
| ⚠R1702 | BZ210080 | R0G3K2275K | RC | 2.7M OHM 1/2W |
| R1706 | AD300651 | R002T4272J | RC | 2.7K OHM 1/4W |
| ⚠R1714 | BZ210268 | R3X181R12J | R,METAL OXIDE | 0.12 OHM 1W |
| ⚠R1717 | AD301016 | R3X28A331J | R,METAL OXIDE | 330 OHM 2W |
| ⚠R1718 | BZ210250 | R5Y2CE1R2J | R,CEMENT | 1.2 OHM 7W |
| ⚠R1720 | BZ210190 | R63581R22J | R,FUSE | 0.22 OHM 1W |
| R2344 | AE002014 | R002021R2J | RC | 1.2 OHM 1/2W |
| R2345 | AE002014 | R002021R2J | RC | 1.2 OHM 1/2W |
| R3010 | AD302206 | R3X181180J | R,METAL OXIDE | 18 OHM 1W |
| R3021 | BZ210134 | R3X181330J | R,METAL OXIDE | 33 OHM 1W |
| | | **CAPACITORS** | | |
| C321 | BZ210176 | E02LF3222M | CE | 2200 UF 25V |
| C357 | BZ110240 | E02L05220M | CE | 22 UF 50V |
| ⚠C403 | BZ110195 | E02LU8220M | CE | 22 UF 100V |
| C404 | BZ110023 | E62DFB470M | CE | 47 UF 160V |
| ⚠C408 | AE000911 | P4N8FK222H | CMPP | 0.0022UF 1.5KV |
| ⚠C409 | AD301434 | E02LU4101M | CE | 100 UF 35V |
| C411 | AE001467 | C0J0B05L2K | CC | 330 PF 500V B |
| C412 | AE001019 | P4J7F3434J | CMPP | 0.43 UF 250V PMS |
| ⚠C417 | AD301123 | P3N1F5273J | CPP | 0.027 UF 630V |
| ⚠C418 | BZ110211 | P4N8FK133H | CMPP | 0.013 UF 1.5KV |
| ⚠C429 | AD301434 | E02LU4101M | CE | 100 UF 35V |
| ⚠C430 | BZ110101 | E5EZF3222M | CE | 2200 UF 25V |
| ⚠C434 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| C435 | BZ110057 | E53FF56R8K | CE | 6.8 UF 50V NP |
| ⚠C446 | AD300061 | E5EZFD220M | CE | 22 UF 250V |
| C449 | BZ110202 | C0PLRR713K | CC | 0.001 UF 2KV R |
| C808 | BZ110247 | C0JBB0713K | CC | 0.001 UF 2KV B |
| ⚠C1701 | BZ110025 | P2122B224M | CMP | 0.22 UF 275V ECQUL |
| C1705 | BZ110202 | C0PLRR713K | CC | 0.001 UF 2KV R |
| C1707 | BZ110203 | C0PLRR7W2K | CC | 820 PF 2KV RR |
| ⚠C1708 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1710 | BZ110226 | C0JBB07H3K | CC | 0.0022UF 2KV B |
| ⚠C1711 | AE002878 | CD39E0MQ3M | CC | 0.0047UF 250V |
| ⚠C1714 | AE000700 | E52DHC681M | CE | 680 UF 200V |
| C1716 | BZ110010 | E02L03222M | CE | 2200 UF 25V |
| ⚠C1717 | BZ110055 | E5EZF4102M | CE | 1000 UF 35V |
| ⚠C1720 | BZ110130 | E62NFC221M | CE | 220 UF 200V |
| ⚠C1725 | AE000074 | E02L08101M | CE | 100 UF 100V |
| ⚠C1728 | AD300785 | E02LT1222M | CE | 2200 UF 10V |
| C1729 | AE000743 | C03L0R7N2K | CC | 390 PF 2KV R |
| C1732 | BZ110032 | E5EZF3102M | CE | 1000 UF 25V |
| ⚠C1733 | AE000467 | E02LU54R7M | CE | 4.7 UF 50V |
| C3009 | BZ110154 | E02L00102M | CE | 1000 UF 6.3V |
| C3010 | AE000744 | E02L00222M | CE | 2200 UF 6.3V |
| | | **DIODES** | | |
| D101 | AD301638 | 0010E00330 | INFRARED LED | LTE-3271T-012A-O |
| D102 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D103 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **DIODES** | | |
| D105 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D106 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D108 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D402 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D403 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D404 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D405 | AD300074 | D2BFRS4FS0 | DIODE,SILICON | RS-4FS |
| ⚠D406 | AD300073 | D2BFRU4AM0 | DIODE,SILICON | RU-4AM |
| D407 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| ⚠D408 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D410 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D411 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| ⚠D412 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D413 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| D414 | BZ410019 | D97U03001B | DIODE,ZENER | MTZJ30B T-77 |
| ⚠D415 | BZ410063 | D2WTAU02A0 | DIODE,SILICON | AU02A-EIC |
| D416 | BZ410085 | D2WXN40050 | DIODE,SILICON | 1N4005-EIC |
| D417 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D418 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D419 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D420 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D601 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D602 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D603 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D604 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D605 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D801 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D802 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D803 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D807 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D808 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D809 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D852 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D853 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D854 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D855 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D856 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D857 | BZ410011 | D28TELS2N2 | DIODE,RECTIFER | 10ELS2N-TA1B2 |
| D858 | BZ410011 | D28TELS2N2 | DIODE,RECTIFER | 10ELS2N-TA1B2 |
| D1501 | BZ410034 | D97U01301B | DIODE,ZENER | MTZJ13B T-77 |
| D1701 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1702 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1703 | AE000141 | D97U02R71B | DIODE,ZENER | MTZJ2.7B T-77 |
| ⚠D1704 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| ⚠D1705 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1706 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1707 | BZ410007 | D23TGP15J0 | DIODE,SILICON | RGP15J-G23 |
| D1708 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1709 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1710 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| ⚠D1711 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1712 | BZ410067 | D97U02R21B | DIODE,ZENER | MTZJ2.2B T-77 |
| D1713 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| ⚠D1714 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1715 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| D1716 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| D1717 | AD300671 | D97U01801B | DIODE,ZENER | MTZJ18B T-77 |
| ⚠D1718 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| D1719 | BZ410115 | D2LKB340L0 | DIODE,SCHOTTKY | SB340L-6737 |
| D1720 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1721 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1722 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| ⚠D1723 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| D1724 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| ⚠D1725 | BZ410062 | D2WTRM11C0 | DIODE,SILICON | RM11C-EIC |
| D1726 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1727 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D1728 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1729 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |
| D1730 | AD301980 | D2CF2016L0 | DIODE,SILICON | FE201-6L49 |
| ⚠D1731 | AD300731 | D2WXN49370 | DIODE,SILICON | 1N4937 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **DIODES** | | |
| D1732 | AD300070 | D97U01201B | DIODE,ZENER | MTZJ12B T-77 |
| D1733 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D1734 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D2201 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D2202 | BZ410022 | D97U06R81B | DIODE,ZENER | MTZJ6.8B T-77 |
| D2204 | BZ410034 | D97U01301B | DIODE,ZENER | MTZJ13B T-77 |
| D2205 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2206 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2207 | BZ410087 | 0021E2Q140 | LED | LTL-1CHEE-002A |
| D2601 | BZ410121 | DDARDS1200 | DIODE,SILICON | KDS120RTK |
| D3001 | BZ410037 | D97U03301B | DIODE,ZENER | MTZJ33B T-77 |
| D3002 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D3003 | BZ410090 | D97U04R71B | DIODE,ZENER | MTZJ4.7B T-77 |
| D3004 | BZ410077 | D2WXSB1400 | DIODE,SCHOTTKY | SB140-EIC |
| D3005 | BZ410012 | D28TQS04N0 | DIODE,SCHOTTKY | 11EQS04N-TA1B2 |
| D3007 | BZ410043 | D2WT011E10 | DIODE,SILICON | 11E1-EIC |
| D3008 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D3011 | BZ410010 | D28T21DQN9 | DIODE,SCHOTTKY | 21DQ09N-TA2B1 |
| D4001 | BZ410119 | DDDRL41480 | DIODE,SILICON | MCL4148 |
| D4201 | BZ410021 | D97U05R61B | DIODE,ZENER | MTZJ5.6B T-77 |
| D4204 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4205 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D4206 | BZ410034 | D97U01301B | DIODE,ZENER | MTZJ13B T-77 |
| D4207 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| D5501 | BZ410123 | D2W0011E10 | DIODE,SILICON | 11E1-B-EIC |
| D5502 | BZ410006 | D1VT001330 | DIODE,SILICON | 1SS133T-77 |
| | | **ICS** | | |
| IC101 | AE003125 | I51F58076A | IC | OEC8076A |
| IC103 | AD301641 | I9UF032310 | IC | PST3231NR |
| IC199 | AE003206 | A5M0030015 | IC | AT24C04N-10SI-2.7 |
| IC302 | AD301983 | I01FF58910 | IC | AN5891SA-E1V |
| IC352 | AD302184 | I0FSP7522N | IC | AN7522N |
| ⚠IC401 | AD300414 | I03TD80410 | IC | LA78041 |
| IC601 | AD302210 | I03FC63240 | IC | LA76324M |
| IC602 | AE000143 | I1KF98L100 | IC | KIA78L10F-RTF |
| IC1501 | AD300609 | I05FE90A45 | IC | TC90A45F |
| IC1502 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1504 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC1505 | AD301927 | I0UF015040 | IC | MM1504XNRE |
| ⚠IC1701 | AD301771 | 000220001W | PHOTO COUPLER | PS2561L1-1-V(W) |
| ⚠IC1702 | AE002834 | I0CJ9AILP0 | IC | TL431AILP |
| IC2301 | BZ611126 | I03F065600 | IC | LA6560 |
| IC2601 | AE002837 | ICQK067080 | IC | ZR36708TQC |
| IC2602 | AD301770 | I07E00358F | IC | BA10358F-E2 |
| ⚠IC3001 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC3002 | AD301929 | I1KA78R090 | IC | KIA278R09PI |
| IC3003 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC3004 | AD301931 | I1KA78R050 | IC | KIA278R05PI |
| IC4001 | AE000842 | ICQK067620 | IC | ZR36762 |
| IC4002 | BZ611124 | I5HJ004BF0 | IC | S-24C04BFJ-TB |
| IC4003 | BZ611130 | I0GF9XZ010 | IC | PQ070XZ01ZP |
| IC4005 | AE000843 | IF9J0164A7 | IC | M12L64164A-7T |
| IC4007 | BZ611129 | ICMJ0800A7 | IC | SST39VF800A-70-4C-EK |
| IC4501 | BZ611095 | I03F3205M0 | IC | LA71205M-MPB |
| IC5501 | BZ611114 | I01F63FBP0 | IC | AN3663FBP |
| IC8001 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8002 | AD301988 | I0UF015010 | IC | MM1501XNRE |
| IC8004 | AE001295 | I0QJ045800 | IC | NJM4580M(TE1) |
| IC8502 | AE002835 | I17F02KEG0 | IC | PCM1742KEG/2K |
| | | **TRANSISTORS** | | |
| Q101 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q102 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| Q103 | BZ410097 | 0000M00390 | PHOTO TRANSISTOR | ST-304L |
| Q104 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q105 | BZ410106 | 0002700680 | PHOTO COUPLER | RPI-352C40N |
| Q106 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| Q107 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q108 | BZ410107 | 0002700690 | PHOTO COUPLER | RPI-303 |
| Q110 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q112 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q114 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **TRANSISTORS** | | |
| Q116 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q350 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| ⚠Q401 | BZ510097 | TCAT03227Y | TRANSISTOR,SILICON | KTC3227_Y-AT |
| Q402 | AD300027 | TC30041590 | TRANSISTOR,SILICON | 2SC4159(D,E) |
| ⚠Q403 | AD302136 | TD50026380 | TRANSISTOR,SILICON | 2SD2638(OEC) |
| Q404 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q405 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q406 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q407 | BZ510096 | TNATB03005 | COMPOUND TRANSISTOR | KRC102MAT |
| Q408 | AD300674 | TCAT032070 | TRANSISTOR,SILICON | KTC3207-AT |
| Q409 | BZ510004 | TA3T016240 | TRANSISTOR,SILICON | 2SA1624-AA |
| Q410 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| Q601 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q602 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q604 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q605 | BZ510025 | TPYJB05001 | COMPOUND TRANSISTOR | DTA114EKAT146 |
| Q606 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| ⚠Q801 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q802 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q803 | BZ510009 | TC3F042170 | TRANSISTOR,SILICON | 2SC4217(D,E)-RAC |
| ⚠Q810 | AD301032 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q811 | AD301032 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| ⚠Q812 | AD301032 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| Q852 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| Q853 | AD300024 | TCUT00752Y | TRANSISTOR,SILICON | 2SC752(G)(TM)_Y |
| Q854 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| Q855 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| Q856 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| Q857 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q858 | AD300029 | TAU0018370 | TRANSISTOR,SILICON | 2SA1837 |
| Q859 | AD300025 | TCU0047930 | TRANSISTOR,SILICON | 2SC4793 |
| Q863 | AD301032 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| Q864 | AD301032 | TCATC3199Y | TRANSISTOR,SILICON | KTC3199_Y-AT |
| Q1501 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q1502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1503 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q1702 | BZ510069 | TCATC31980 | TRANSISTOR,SILICON | KTC3198-AT(Y,GR) |
| ⚠Q1705 | BZ510098 | T220033260 | FET | 2SK3326(2) |
| ⚠Q1706 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q2201 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q2202 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q2203 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q2601 | BZ510112 | T67J1036K0 | TRANSISTOR,SILICON | 2SA1036KT146 |
| Q2602 | BZ510112 | T67J1036K0 | TRANSISTOR,SILICON | 2SA1036KT146 |
| Q2603 | BZ510113 | T27T030180 | FET | 2SK3018 |
| Q2604 | BZ510113 | T27T030180 | FET | 2SK3018 |
| Q2605 | BZ510113 | T27T030180 | FET | 2SK3018 |
| Q3001 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| ⚠Q3002 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3003 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3004 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| ⚠Q3005 | AD301934 | TBA0013660 | TRANSISTOR,SILICON | KTB1366(O,Y) |
| Q3006 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q3007 | BZ510057 | TAAT01281Y | TRANSISTOR,SILICON | KTA1281_Y |
| Q3008 | BZ510081 | TPYJA05001 | COMPOUND TRANSISTOR | DTA143EKAT146 |
| Q3009 | BZ510020 | TNYJB05001 | COMPOUND TRANSISTOR | DTC114EKAT146 |
| Q3010 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3011 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q3014 | BZ510105 | TCAT03209Y | TRANSISTOR,SILICON | KTC3209_Y-AT |
| Q3015 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4004 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4201 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4202 | BZ510026 | TPYJC05001 | COMPOUND TRANSISTOR | DTA124EKAT146 |
| Q4203 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4204 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| Q4210 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q4211 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4212 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q4501 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4502 | BZ510109 | TCAA3875SY | TRANSISTOR,SILICON | KTC3875S_Y_RTK |
| Q4503 | BZ510026 | TPYJC05001 | COMPOUND TRANSISTOR | DTA124EKAT146 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **TRANSISTORS** | | |
| Q4504 | BZ510070 | TCAT032034 | TRANSISTOR,SILICON | KTC3203_Y-AT |
| Q4505 | BZ510073 | TAATA12660 | TRANSISTOR,SILICON | KTA1266-AT(Y,GR) |
| Q4506 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4507 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q4509 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q4511 | BZ510001 | T6YJ1037K0 | TRANSISTOR,SILICON | 2SA1037AKT146R,S |
| Q8002 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q8006 | BZ510002 | T8YJ2412K0 | TRANSISTOR,SILICON | 2SC2412KT146 R,S |
| Q8007 | BZ510021 | TNYJC05001 | COMPOUND TRANSISTOR | DTC124EKAT146 |
| Q8502 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q8503 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| Q8504 | BZ510108 | TAAA1504SY | TRANSISTOR,SILICON | KTA1504S_Y_RTK |
| | | **COILS &TRANSFORMERS** | | |
| L001 | BZ310002 | 021673101K | COIL | 100 UH |
| L301 | BZ310156 | 021375101K | COIL | 100 UH |
| L401 | AD300117 | 02D1000001 | COIL | ELC16B501EN |
| L402 | AD300400 | 022100034A | COIL,LINEARITY | ELH5L4132N |
| L403 | BZ310004 | 021679472K | COIL | 4.7 MH |
| L601 | BZ310041 | 02167F101J | COIL | 100 UH |
| L602 | BZ310156 | 021375101K | COIL | 100 UH |
| L603 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L802 | AD300123 | 021673151K | COIL | 150 UH |
| L803 | AD300123 | 021673151K | COIL | 150 UH |
| L804 | AD300123 | 021673151K | COIL | 150 UH |
| L1501 | AD300612 | 02167F100J | COIL | 10 UH |
| L1502 | BZ310043 | 021LA6150K | COIL | 15 UH |
| L1504 | AD300123 | 021673151K | COIL | 150 UH |
| L1505 | BZ310079 | 021LA6101J | COIL | 100 UH |
| L1506 | BZ310079 | 021LA6101J | COIL | 100 UH |
| ⚠L1701 | BZ310180 | 029T000105 | COIL,LINE FILTER | 2R2A752F28 |
| ⚠L1703 | AD302360 | 028R270012 | COIL,DEGAUSS | 8R270012 |
| ⚠L1704 | AD301539 | 02AHB0A0A4 | CORE,FERRITE | W5T_20*10*10A |
| L3001 | BZ310091 | 021W7A220K | COIL | 22 UH |
| L3002 | AD301785 | 02167E100K | COIL | R6-1 10 UH |
| L4001 | BZ310191 | 02167F2R2J | COIL | 2.2 UH |
| L4002 | BZ310118 | 02AHB9A972 | CORE,FERRITE | W5T29X7.5X19 |
| L4205 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4501 | BZ310156 | 021375101K | COIL | 100 UH |
| L4502 | BZ310114 | 031626009R | COIL,BIAS OSC | 1626009 |
| L4504 | BZ310041 | 02167F101J | COIL | 100 UH |
| L4505 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4506 | BZ310040 | 02167F470J | COIL | 47 UH |
| L4509 | BZ310156 | 021375101K | COIL | 100 UH |
| L5501 | BZ310079 | 021LA6101J | COIL | 100 UH |
| L5502 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5503 | BZ310039 | 02167F220J | COIL | 22 UH |
| L5504 | BZ310039 | 02167F220J | COIL | 22 UH |
| L8001 | BZ310041 | 02167F101J | COIL | 100 UH |
| L8002 | BZ310079 | 021LA6101J | COIL | 100 UH |
| L8003 | BZ310041 | 02167F101J | COIL | 100 UH |
| L8502 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8503 | AE000828 | 02167F1R0K | COIL | 1 UH |
| L8504 | AE000828 | 02167F1R0K | COIL | 1 UH |
| T401 | AD301125 | 0450190161 | TRANS,HORIZONTAL DRIVE | ETH19Y203AY |
| ⚠T1701 | AE001021 | 048142066S | TRANSFORMER,SWITCHING | 8142066S |
| | | **JACKS** | | |
| ⚠J801 | AD301936 | 066F130021 | SOCKET,CATHODE RAY,TUBE | ISHS62S |
| ⚠J2201 | BZ614361 | 060J131015 | HEADPHONE JACK | MSJ-2000 |
| J2202 | AE002949 | 060J421036 | RCA JACK | MTJ-032-05A-30-FE |
| J2203 | AE002950 | 060J421037 | RCA JACK | MTJ-032-05A-32-FE |
| J2204 | AE002951 | 060J421030 | RCA JACK | MTJ-032-05A-31-FE |
| J4201 | AD301038 | 060J431019 | RCA JACK | MSP-213V2-432 PBSN |
| J4202 | BZ614399 | 060J411018 | RCA JACK | MSP-213V1-432 PBSN |
| J8007 | BZ614400 | 060J401082 | RCA JACK | MSP-251V-05PBSN |
| | | **SWITCHES** | | |
| SW101 | BZ612016 | 0508S11001 | SWITCH (LEAF) | LSA-1144EAU |
| SW2201 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2202 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2203 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2204 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2205 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **SWITCHES** | | |
| SW2206 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2207 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2251 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2252 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2253 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2254 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2255 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2256 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2257 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| SW2258 | BZ612010 | 0504101T34 | SWITCH,TACT | EVQ21505R |
| | | **VARIABLE RESISTORS** | | |
| VR404 | BZ210218 | V1K63H3BTE | VOLUME,SEMI FIXED | NVG6TLTAB222 |
| VR1701 | AD301937 | V1K6314BTE | VOLUME,SEMI FIXED | NVG6TLTAB103 |
| | | **P.C.BOARD ASSEMBLIES** | | |
| PCB010 | AE003207 | A5M0030010 | PCB ASS'Y | VMC293B |
| PCB080 | AE003208 | A5M0030080 | PCB ASS'Y | TMC564B |
| PCB110 | AE003209 | A5M0030110 | PCB ASS'Y | TCA391C |
| PCB130 | AE003210 | A5M0030130 | PCB ASS'Y | VMC319A |
| PCB270 | AE003211 | A5M0030270 | PCB ASS'Y | TECB10B |
| PCBD80 | AE003212 | A5M0030D80 | PCB ASS'Y | TEAA93C |
| | | **MISCELLANEOUS** | | |
| B403 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B851 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B852 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B853 | BZ310121 | 024HT03553 | CORE,BEADS | W5RH3.5X5X1.0 |
| B1703 | BZ310122 | 024HT03563 | CORE,BEADS | W4BRH3.5X6X1.0X2 |
| B1704 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B2201 | BZ310129 | 024HT03564 | CORE,BEADS | W4BRH3.5X6X1.0 |
| B2601 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B2602 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B2603 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B2604 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B2605 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4001 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4002 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4003 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4004 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4005 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4006 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4007 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4008 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B4009 | BZ310122 | 024HT03563 | CORE,BEADS | W4BRH3.5X6X1.0X2 |
| B4010 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B8001 | BZ310122 | 024HT03563 | CORE,BEADS | W4BRH3.5X6X1.0X2 |
| B8502 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| B8503 | BZ310186 | 024HC31022 | CORE,BEADS | FCM2012H-102T04 |
| BL001 | BZ310014 | 023C00022A | COIL,BALUN | HPN-01 |
| BT001 | AE000012 | 1412004008 | BATTERY,MANGAN | R03(AB)E_2P_G |
| BT002 | AE000012 | 1412004008 | BATTERY,MANGAN | R03(AB)E_2P_G |
| CD002 | BZ614411 | 06CU011902 | CORD,CONNECTOR | CU011902 |
| CD303 | BZ614424 | 06CU149001 | CORD,CONNECTOR | CU149001 |
| CD602 | AD302218 | 06CU291701 | CORD,CONNECTOR | CU291701 |
| CD603 | AE001028 | 06CU285001 | CORD,CONNECTOR | CU285001 |
| CD604 | AE000132 | 06CU282401 | CORD,CONNECTOR | CU282401 |
| CD802 | AD301042 | 06CU253401 | CORD,CONNECTOR | CU253401 |
| CD803 | AE003007 | 06CU83036A | CORD,CONNECTOR | CU83036A |
| CD851 | AD302371 | 06CU244701 | CORD,CONNECTOR | CU244701 |
| CD852 | AD301043 | 06CU232001 | CORD,CONNECTOR | CU232001 |
| CP001 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP101 | BZ614289 | 06972C0010 | CONNECTOR PCB SIDE | TMC-J12P-B2 |
| CP303 | AD301045 | 069S140419 | CONNECTOR PCB SIDE | A2502WV2-4P |
| ⚠CP404 | AD300095 | 069X460029 | CONNECTOR PCB SIDE | B06B-DVS |
| CP601 | AD301943 | 069S240639 | CONNECTOR PCB SIDE | A2001WR2-4P |
| CP602 | BZ614462 | 067U009039 | WIRE HOLDER | B2013H02-9P |
| CP604 | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP803 | AD301996 | 069S330010 | CONNECTOR PCB SIDE | A2361WV2-3P |
| CP804 | BZ614058 | 069W010010 | CONNECTOR PCB SIDE | 005P-2100 |
| CP852 | BZ614350 | 069S230629 | CONNECTOR PCB SIDE | A2001WV2-3P |
| ⚠CD1702 | BZ614407 | 120R415906 | CORD,AC BUSH | 0R415906 |
| CD2251 | BZ614408 | 06CU220701 | CORD,CONNECTOR | CU220701 |
| CD4002 | AD301946 | 06CU2B3301 | CORD,CONNECTOR | CU2B3301 |

# ELECTRICAL REPLACEMENT PARTS LIST

| Location No. | TSB P/N | Reference No. | Description | |
|---|---|---|---|---|
| | | **MISCELLANEOUS** | | |
| CD4501 | BZ614373 | 122F061502 | CORD,JUMPER | 2F061502 |
| CD8501 | AE000134 | 122H0C2204 | CORD,JUMPER | 2H0C2204 |
| CP1702 | AD301944 | 067U008029 | WIRE HOLDER | B2013H02-8P |
| ⚠CP1704 | AD300687 | 069S420110 | CONNECTOR PCB SIDE | A1561WV2-2P |
| CP1707 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP1708 | BZ614444 | 069D01001A | CONNECTOR PCB SIDE | 003P-2100 |
| CP2201 | BZ614416 | 069S220629 | CONNECTOR PCB SIDE | A2001WV2-2P |
| CP2601 | AD302396 | 069JYOT099 | CONNECTOR PCB SIDE | IMSA-9631S-24Y901 |
| CP2602 | AD301858 | 069JV80180 | CONNECTOR PCB SIDE | IMSA-9615S-08C-PP |
| CP2603 | AD301795 | 069S230639 | CONNECTOR PCB SIDE | A2001WR2-3P |
| CP4501 | BZ614011 | 0697290620 | CONNECTOR PCB SIDE | TOC-C09X-A1 |
| CP4502 | BZ614050 | 069J760029 | CONNECTOR PCB SIDE | IMSA-9604S-06Z14 |
| CP4503 | AD301649 | 067U002019 | WIRE HOLDER | B2013H02-2P |
| CP602B | BZ614458 | 069S290629 | CONNECTOR PCB SIDE | A2001WV2-9P |
| CP8001 | BZ614214 | 069S2B0629 | CONNECTOR PCB SIDE | A2001WV2-11P |
| CP8002 | AD301797 | 069J7C0029 | CONNECTOR PCB SIDE | IMSA-9604S-12Z14 |
| CP801B | AD300752 | 069S250629 | CONNECTOR PCB SIDE | A2001WV2-5P |
| CP802A | BZ614276 | 067U005049 | WIRE HOLDER | B2013H02-5P |
| CP802B | AD301796 | 069S280629 | CONNECTOR PCB SIDE | A2001WV2-8P |
| CP8502 | AD301798 | 069J7C0019 | CONNECTOR PCB SIDE | IMSA-9604S-12Z13 |
| CP851A | BZ614334 | 067U004029 | WIRE HOLDER | B2013H02-4P |
| CP851B | AD301998 | 069S240629 | CONNECTOR PCB SIDE | A2001WV2-4P |
| CP852B | BZ614349 | 067U003029 | WIRE HOLDER | B2013H02-3P |
| CUS011 | BZ710148 | 800WFAA007 | CUSHION B | |
| CUS013 | BZ710149 | 800WFAA008 | CUSHION C | |
| EL001 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL002 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| EL003 | BZ614044 | 124120301A | EYE LET | XRY20X30BD |
| EL004 | BZ614043 | 124116281A | EYE LET | XRY16X28BD |
| ⚠F1701 | AD301046 | 081PC6R305 | FUSE | 51MS063L |
| ⚠FB401 | AE003213 | 043227017F | TRANSFORMER,FLYBACK | FSU27A004_M |
| FH1701 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| FH1702 | AE002634 | 06710T0009 | HOLDER,FUSE | EYF-52BCY |
| OS2201 | AD301949 | 0773071003 | REMOTE RECEIVER | RPM7138-WH10 |
| ⚠RY1701 | AD300114 | 0560V20115 | RELAY | ALKS321 |
| ⚠SP351 | BZ614381 | 070C546004 | SPEAKER | SG04H02BRA |
| ⚠SP352 | BZ614381 | 070C546004 | SPEAKER | SG04H02BRA |
| TM101 | AD301950 | 076D0FG020 | TRANSMITTER | ORV201N36010 |
| ⚠TU001 | AE000273 | 0163300005 | RF UNIT | 115-V-K015AR_B |
| ⚠TH1701 | BZ410079 | DF5EL3R0A0 | DEGAUSS ELEMENT | ZPB45BL3R0A |
| ⚠V801 | AE002808 | 0981270905 | CRT W/DY | A68LZU185X80 |
| X101 | BZ613006 | 100DA32R01 | CRYSTAL | DT-26 |
| X102 | BZ613033 | 100CT01403 | CRYSTAL | HC-49/U-S |
| X601 | AD301951 | 100CT3R532 | CRYSTAL | HC-49/U-S |
| X4001 | AD301803 | 100BT02701 | CRYSTAL | HC-49U/S |
| X4501 | BZ613017 | 100CT3R502 | CRYSTAL | HC-49/U |

RESISTOR

RC..... CARBON RESISTOR

CAPACITORS

CC..... CERAMIC CAPACITOR
CE..... ALUMI ELECTROLYTIC CAPACITOR
CP..... POLYESTER CAPACITOR
CPP..... POLYPROPYLENE CAPACITOR
CPL..... PLASTIC CAPACITOR
CMP..... METAL POLYESTER CAPACITOR
CMPL..... METAL PLASTIC CAPACITOR
CMPP..... METAL POLYPROPYLENE CAPACITOR

**TOSHIBA CORPORATION**
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